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Original Articles.

WHAT IS THE PROPER SURGICAL TREATMENT OF SUSPICIOUS TUMORS OF THE INVOLUTING BREAST?*

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MINNEAPOLIS.

From articles which have appeared in the medical journals during the past year emanating from centers of medical education, it would seem as if the query propounded above was susceptible of widely varying answers, and that there was no unanimity of opinion on this question among American surgeons.

By suspicious tumors are meant, not clearly diagnosable carcinomata or cysts, but small, hard tumors in women over 40, which may be early carcinomata, adenofibromata, single tense cysts or the earlier cysts of a chronic cystic mastitis.

All surgeons must frequently have to decide this question of how to best surgically treat a small doubtful tumor in a woman past the menopause, and many must err either in doing an unnecessarily large operation on the one hand, or, far worse, in failing to recognize malignancy and by too conservative work favoring prompt recurrence.

What is needed is an acceptable exploratory procedure which will allow exposure and macroscopic, and, if need be, microscopic examination of the suspected mass before deciding on the extent and nature of the operative procedure that must be carried out.

Can this be safely done? In regard to this there are again very decided differences of opinion which may, perhaps, be harmonized by a study of the accepted facts.

It is admitted, by all pathologists and most surgeons, that malignant tumors can be grafted on healthy tissue by accidental implantation of tumor elements during operation. Hence, it has long been an accepted theoretical rule that in operations for malignancy no section of the tumor, adjoining tissue or associated lymphatics should be made, and all diagnostic punctures by aspirating needle or the various harpoons have been tabooed.

Recorded cases illustrating recurrence by grafting are too numerous to admit of any doubt of the practical value of this point, but in all cases the recurrence seems to have arisen from the cut surface of the removed tumor having been brought into contact with healthy parts left behind and there being thus left in the healing wound a part of the original tumor.

To avoid this danger an exploratory operation should possess several details as to technic. First, all tissues exposed to infection by the incision must subsequently be removed in case malignancy is not excluded. Second, the instruments used for the section of the tumor should be laid aside or resterilized before proceeding with the operation. Third, all lymphatic connections of the tumor should be cut or interrupted before making the tumor section.

With these precautions it is difficult to see how grafting can occur, and it seems probable that the fear of this accident has hindered the proper use of an exploratory operation.

The third point noted above is in conflict with the practice of some of our leading surgeons, but has considerable theoretical and experimental foundation to support it.

There seems little question that the section of a malignant growth in situ can by the merest pressure used, force cancer cells into the neighboring lymphatics and nodes. Experimentally, any one can repeat for himself the procedure first used by Gerster, I think, in 1883, of injecting an emulsion of lampblack into and around the tumor, and, after incising and removing the tumor and axillary contents, studying the removed tissues histologically with the invariable result of finding lampblack in the axillary nodes.

Dr. Abbe was to have presented a paper before this Section at the New Orleans session, afterward published in the *Medical Record*, which is so at variance from the above in its teachings and conclusions that it seems proper to discuss it somewhat at length, for if its conclusions are correct many of the best pathologists in the surgical world are badly at fault.

Dr. Abbe speaks of mammary cysts, basing his conclusions on the record of forty-one cases seen in his office, and comparing them with fifty-six cases of scirrhus seen under the same conditions. He opens the question of the importance of the discussion of mammary cysts by stating: 1. They are much more numerous than is supposed. 2. The forty-one cases were all referred to him as cancer and that the patients expected to lose their breasts. 3. Many surgeons erroneously advise amputation when the breast contains a cyst because same is likely to become malignant.

He discusses at length the clinical features of cysts as shown by his forty-one cases, only two of which were in patients under 35, and only 25 per cent. of which showed more than one cyst and none over four, and only two of which showed papillomatous ingrowths, and concludes, that, while many cysts are difficult to diagnose on account of deep position and tenseness we have in the aspirator needle an unfailing means of diagnosis and at the same time cure. All his cases were cured by simple aspiration, hence, he says, "It stands proved that

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no case of mammary cyst capable of careful and complete aspiration should ever be subjected to any further treatment. It will be cured by that method permanently. It becomes the duty then of every surgeon to test the nature of each doubtful hard tumor of the breast by an aspirating needle thrust quickly into its very center, sterilizing the skin by a moment's friction with alcohol."

Is this correct and safe teaching? I think not. First, it is remarkable that all of Dr. Abbe's cysts should be simple cysts except the two which contained papillomata, and that he observed no cancer cysts, no cystic adenomata, and especially no cases of chronic cystic mastitis with multiple cysts.

At Johns Hopkins, Bloodgood states that out of 510 hospital patients admitted with breast disease only 32 had simple cysts, 8 cysts with intracystic growths, 5 cystic adenomata and 2 dermoid cysts, 24 adenocarcinoma arising from cystic adenoma, and 8 cancer cysts, the simple cysts being less than 50 per cent., and that it was found impossible to diagnose many of the cysts without an exploratory incision. In contrast to Dr. Abbe's 40 per cent. of simple cysts observed, this gives less than 7 per cent. in the 510 cases.

Microscopic study of these tumors has shown without any possible doubt that a certain proportion of cysts with intracystic growths are malignant, and that a larger number of clinical cysts, including the cystic adenomata and cancer cysts, are also malignant.

In view of these pathologic facts and the admitted danger of inoculation when a malignant growth is aspirated, can the aspirator be advised either as a means of diagnosis or cure? Certainly not.

From this point of view it must seem that the publication of such brilliant clinical success by an eminent surgeon like Dr. Abbe can not fail to do immense harm by justifying the general practitioner in the adoption of a method which, used as Dr. Abbe advises, must result in fatal delay and dangerous dissemination in all malignant cases so treated. The question is certainly a vital one and worthy of careful discussion.

During the past year two pathologic studies of cystic disease of the breast have appeared, both basing their conclusions on microscopic research and coming to conclusions diametrically opposed to those of Dr. Abbe. The more elaborate paper of the two, by Drs. Greenough and Hartwell,[1] Boston, on "Chronic Cystic Mastitis," gives a study of 30 cases, out of which three, which are clinically and macroscopically indistinguishable from the others, showed microscopic cancer, while all showed adenomatous proliferation of the cyst lining suggestive of beginning adenocarcinoma.

Their conclusions as far as pertain to this paper are: That transition to adenocarcinoma occurs in a limited number of cases of chronic cystic mastitis. That the danger of the transition of chronic cystic mastitis to adenocarcinoma is sufficient to make the removal of the whole gland advisable in all except very early, slight degrees of the affection. That the operation to be advised is the subcutaneous resection of the entire gland without the removal of the nipple, a surgical procedure which it would seem has in its favor only the cosmetic beauty of a nipple planted on the thoracic wall, and has the radical objection that no access is given to the axilla.

The second article, "Cystic Degeneration of the Mamma, Showing Transformation into Scirrhus Carcinoma," by Dr. A. G. Ellis, Philadelphia,[2] gives the clinical history and histologic details of a cystic breast similar to the 30 discussed in the first paper, which gave distinct histologic evidence of having become scirrhus carcinoma.

Can there be any doubt what the clinical result would have been if this last case and the three clearly malignant cases noted in the Boston paper had been aspirated and sent home "cured"? The fact that a large percentage of the cysts are not malignant does not in any way excuse our basing our treatment on methods which exclude the few malignant ones which can not be diagnosed by clinical examination. These few are the most important and our methods should be directed to them to afford the patients the best chance to escape death from cancer.

Bloodgood has well said that the law principle that a prisoner is innocent until found guilty must be reversed when considering tumors, and that all tumors must be considered and treated as malignant until absolutely proven to be benign. This certainly applies to tumors of the breast in patients over 40, and it is fortunate that the part involved is functionally useless, and hence, radical operative treatment is not contraindicated by the necessity of preserving important organs.

The technic of an exploratory operation to be used in all cases of doubtful tumors of the breast involves either a direct section of the tumor, as used at Johns Hopkins with good results, but against which the objection may be raised that such manipulation may in some cases disseminate the cells of a malignant growth; or, amputation of the breast in all cases, with the clamping by forceps of a pedicle containing all lymphatics leading to the axilla, until the tumor has been examined.

In the latter case the incision should be so planned as to best permit of a Halsted operation in case of malignancy, and as a matter of convenience the breast should be cut loose after doubly clamping the pedicle, the section of the pedicle being made with the actual cautery to avoid infection, or a piece of gauze being stitched over the cut axillary end of the pedicle during the remainder of the operation. By this technic the only tissues which by any chance can be infected with cancer are afterward removed when the larger operation is completed.

Too much importance can not be attached to the naked eye diagnosis of the tumor exposed by the exploratory operation, as on the surgeon's proficiency in this must depend the benefit to the patient of such procedures.

CHRONIC CYSTIC MASTITIS SIMULATING EARLY CARCINOMA.

CASE 1.—Mrs. H., married, American, aged 48. The patient has always been perfectly well, and has never had any trouble with her breast until she discovered, one month ago, a small, hard lump in the left breast. She has nursed a number of children, but has never suffered from an abscess or other complications.

Examination.—An irregular mass, three-quarters of an inch in diameter, was found in the outer and upper quadrant of the left breast. The tumor was hard and freely movable, and the breast was movable on the chest. There seemed slight fixation of the skin covering the tumor, but there was no atrophy of the subcutaneous fat. The axillary nodes were not palpable.

The diagnosis made was a probable adenoma or cyst, but in view of her age and the slight fixation of the skin over the tumor the possibility of cancer was stated and an extensive operation advised.

Operation.—Nov. 4, 1903. The breast was loosened from

1. Journal of Medical Research, June, 1903.

2. Annals of Surgery, September, 1903.

the chest by an oval incision, extended to the arm, and the axillary contents were exposed. The pedicle leading to the axilla was then doubly clamped, and the breast was cut loose and examined by section. The hard mass felt on examination was found to be a deeply-situated tense cyst, and the other parts of the breast were studded with similar smaller cysts, none of which were palpable until the breast was removed. There was some induration of the breast tissue adjoining the larger cyst, and the axilla showed, when opened, several palpable lymphnodes. Accordingly, it was deemed best to remove the axillary contents and also the fascia from the pectoralis major.

Microscopic Examination.—The lymph nodes were normal and there was great increase of connective tissue throughout the breast, arranged mainly in bands surrounding remnants of gland tissue which were fairly normal. There were also numerous areas of round cell infiltration, especially noticeable just outside of the walls of the larger cysts. Quite a number of the breast acini were dilated, forming single cysts, and in a few areas multilocular cysts closely related to each other had been formed. The lining of the cysts consisted of cuboidal epithelium, usually two layers deep, and in many of the cysts the lining was raised to form polypoid ingrowths. In the smaller cysts there was commonly only one of these papillomatous growths, but in the larger cysts they were quite numerous. Many of them had a central stem of connective tissue and blood vessels, but some could be demonstrated by serial sections to be entirely composed of epithelium, thus corresponding to the type of adenomatous overgrowth of the cyst lining, described by recent authors as the precursor of adenocarcinoma.

ADENOCARCINOMA WITH BENIGN HISTORY.

CASE 2.—Mrs. C., aged 42, American, a patient of my colleague, Dr. J. E. Moore, gave the following history:

History.—General health has always been good. She has never been pregnant and had no breast disease or injury. About five years ago she first noticed an induration in the left breast which has slowly increased in size. There has been no pain nor tenderness, but during the past few months she has felt some discomfort and uneasiness in her breast.

Examination.—An examination showed a hard, irregular tumor, roughly one and one-half by one inch in size, situated in the outer and lower quadrant of the left breast and running up slightly into the outer and upper quadrant near the nipple. The tumor was not attached to the skin, nor apparently to the chest wall, and the nipple was not retracted. There was moderate enlargement of the axillary lymph nodes.

The patient's age, axillary involvement, and the fact that the tumor was increasing in size, put this tumor into the doubtful class and she was advised to submit to an extensive operation.

Operation.—The operation consisted of an amputation of the breast, clamping of the pedicle leading to the axilla, removal of the breast and examination by section.

This showed an irregular white tumor, with no definite capsule, which was infiltrating along the lower surface of the breast and pectoral fascia. On this indication of malignancy, the operation was completed by removing the outer one-half of pectoralis major, with the fascia of the whole muscle, and the axillary contents up to the clavicle.

Microscopic Examination.—An ordinary fibroadenoma of the breast. Except at the lower part, where there was much overgrowth of new epithelium and infiltration into the connective tissue by the new cells, showing a distinct tendency to adenocarcinoma. The axillary nodes were normal.

These two cases illustrate very well two conditions under which the surgeon may rightfully doubt as to the diagnosis and the proper operation unless he is aided by a properly performed exploratory procedure.

CONCLUSIONS.

1. There is a lamentable and unnecessary difference of opinion among surgeons as to the treatment of doubtful tumors of the breast.

2. All tumors of the breast in patients over 40 must be considered malignant until proven benign.

3. Most of such tumors demand amputation of the breast with exploration of the tumor, and a complete Halsted operation if there is then doubt as to benignancy.

4. An exploratory procedure should be planned to avoid contact of cut lymphatics with any tissues left behind, and any chance of dissemination of cancer cells by pressure before the removal of the breast.

5. *X*-ray treatment, aspiration, or any but radical treatment is objectionable as causing delay and dissemination.

DISCUSSION.

DR. WILLIAM JEPSON, Sioux City, Iowa—The use of the microscope is very important in these cases, as the symptomatology of benign and malignant growths overlap one another so much. A large number of benign growths are really benign temporarily. One-half of the sarcomata are cystic. The growth is a solid one, but it is not necessarily malignant any more than benign. Is it so essential that we should attempt to make this differential diagnosis in order that we may save a breast now and then from being removed on the supposition that it is malignant when it is benign? Should we put our patients through a long operative procedure when the microscope might decide it? Only a few are benign; most of them are malignant, as shown by statistics. I therefore agree with the essayist that a growth in at least nine out of ten involuted breasts must be looked on as malignant. The day is not far distant when it will be good surgery to begin operative interference at once in every breast that is the seat of a growth, and this operative interference will be entire extirpation.

DR. JOSEPH C. BLOODGOOD, Baltimore—Improvement in the ultimate cure after operations for the different varieties of tumors depends more on early recognition and treatment than on operative technic. The most promising time for the operative removal of the tumor is the moment it is observed by the patient. The laity and the general profession must be impressed with this fact. In the surgical clinic of Dr. Halsted in the Johns Hopkins Hospital, from June, 1889, to 1902, a period of thirteen years, there have been observed 169 patients suffering from benign tumors or inflammations, and 341 with malignant tumors of the breast. In June, 1902, it was found that 47.2 per cent. of patients operated on for malignant tumors of the breast remained well for three years or more. After three years regionary recurrence, chiefly in the mediastinum, has been observed up to eight years after operation. For this reason it is difficult to state as yet what period of apparent freedom should be considered a basis on which to prognosticate an ultimate cure. The statistics at the present time are not completed. During the last few years the relative number of benign tumors of the breast is increasing, and most fortunately, the number of patients who seek advice very quickly after the appearance of a malignant tumor is becoming greater. In the course of the last year I have seen four tumors of the breast within a few days after they were first observed by the patient. Two of these proved to be cancer; in one the axillary glands were free; in the other metastasis had occurred. In my opinion every single tumor of the breast should be immediately explored, the positive diagnosis made at this exploration and followed by an immediate operation, the extent of which is indicated by the pathology of the tumor. The removal of the tumor is sufficient in intracanalicular myxoma, adenofibroma and cystic adenoma. In tuberculosis and simple cysts the entire breast should be removed. In cancer the complete operation first advocated by Halsted should be performed. Exploratory incision, of course, is unnecessary and should not be done in any tumor which can be recognized clinically as malignant. However, the early stage of a malignant tumor frequently can not be differentiated clinically from a benign tumor, and for this reason an exploratory incision into the tumor must be made. The differential diagnosis with the naked eye is not difficult. The earlier the individual seeks sur-

gical advice after the appearance of the tumor the more frequently will an exploratory incision be necessary to make the diagnosis. Among 277 malignant tumors subjected to operation in Dr. Halsted's clinic in 28 an exploratory incision was made; 26 of these patients are living and apparently well today, the majority having passed the three-year stage; two patients are dead; both cancer cysts, in both the glands of the axilla and neck, were extensively involved. From these facts there is apparently no contraindication to an exploratory incision into tumors in which a clinical diagnosis can not be made. In young women under 30 years of age with multiple tumors in one or both breasts there is no indication for operation; these tumors are intracanalicular myxomata. The multiple tumors in one or both breasts in older women are the so-called simple cysts. These cysts are part of a pathologic process which I have called senile atypical parenchymatous hypertrophy. One or both breasts should be completely removed. Our experience has demonstrated that in about 10 per cent. malignant epithelial changes are present. These cysts should never be aspirated for this reason. However, there seems to be a tendency for this cystic disease to recover. In five patients who refused operation the induration has apparently disappeared.

DR. ROBERT T. MORRIS, New York—There is one point that helps in simplifying this question. When it is difficult to determine whether a neoplasm is malignant or not, many patients will postpone operation until the surgeon finds ground for stronger conviction. By this time the malignant neoplasms may be beyond the stage of satisfactory removal. We can usually get consent to immediate operation by telling the patient that she will be prepared for a complete operation, but that a small operation for removal of the section for spot diagnosis by frozen section will first be made. We say to her that if the frozen section, made in five minutes on the spot, shows the growth to be benign, she will be allowed to escape without extensive operation, but if maligant disease is discovered, a timely and proper operation will be particularly successful. I find patients very ready to adopt this plan of procedure. The element of curiosity on the part of the patient is an important point, and she is usually anxious to know definitely the nature of the neoplasm.

DR. WILLY MEYER, New York—The incision I employ in operating for cancer of the breast is as follows: Starting at the insertion of the tendon of the pectoralis major muscle in the humerus, it runs about an inch and a half above the lower border of that muscle, to a point somewhat beyond the middle line of the body, over the sternum, encircling the breast at its base. Two large flaps, an upper and a lower one, are formed in this way. The additional incision of the upper flap, originally advised by me, which ran up to the middle of the clavicle and which was lengthened, in case of need, into the supraclavicular space for the removal of enlarged glands in that region, I no longer practice. First, the lower flap is turned down until the border of the latissimus dorsi muscle is exposed in the axillary cavity and further inward the chest wall, care being taken not to injure the bundles of the serratus anticus major muscle. As much fat as possible remains attached to the breast. Then the upper flap is turned upward carefully in such a way that the pectoralis fascia remains attached to the pectoralis major muscle as much as possible until the cephalic vein, clavicle and sternoclavicular articulation are exposed. Along the lower border of the cephalic vein the division between pectoralis major and deltoid muscles is followed up to the humerus. The tendon of the pectoralis major having been reached, the lower border of the muscle adjoining the axilla is quickly cleared and the tendon, being grasped with one finger, cut off with curved scissors close to the humerus. The cut end of the muscle is reflected and pulled down by sharp retractors. The lower border of the cephalic vein is followed inward toward the clavicle and the pectoralis major muscle cut off alongside and close to the bone. Sharp retractors pull down the belly of the muscle. The pectoralis minor muscle is then bared in its upper portion and its tendon divided at the coracoid process. The fascia, covering vessels and nerves, having been horizontally divided, the axillary vessels are now within reach and the lower border of the vein is brought into view. Then make perpendicular division of the fat entering the bicipital sulcus of the arm from the axillary cavity. This can be safely done as the vein above remains in view. Starting at this point, the fat and glands of the axillary cavity are severed step by step from the lower aspect of the axillary and subclavian vein, all vessels being caught between two clamps before they are cut, up to the spot where the subclavian vein dips under the clavicle. Now the first assistant takes hold of this mass and the surgeon, directing the blade of his knife toward the chest wall, *not* toward the subscapular space, and assisting with his left hand by gently pushing up the mass from the thorax, cuts off the pectoralis major muscle from the thoracic wall with short, quick cuts, the perforantes arteries and their concomitant veins having been first caught and divided between two forceps. In this way at last a pedicle is formed which remains attached to the sternum only. Here it is cut off with large curved scissors and the operation is finished.

From this description it will be seen that the tumor itself is not invaded during the entire operation. Furthermore, all vessels being first doubly clamped and then cut near their origin or entrance, hemorrhage is reduced to a minimum. In order to reduce the size of the always resulting skin defect, I have of late adopted the plan of preserving as much as possible of the belly of the pectoralis minor muscle in order to suture to it by a continuous catgut suture the skin, bordering the defect. This also furnishes a smooth surface for the subsequent grafting process which is always immediately added. I do not hesitate about leaving this part of the muscle behind, since it has been shown that it is never invaded by the disease, except in far advanced, rather in operable cases. I am used to seeing all grafts take at once. The first change of dressing is done usually on the sixth day; the second on the eighth, when the patient will be out of bed.

The time consumed by this operation, including grafting and dressing, is on an average two hours. I have, however, been able to do it in one hour and twenty minutes. The time of the operation as such, i. e., from the beginning of the incision until the tumor has been cut off from the sternum, is from twenty-five to thirty minutes, although I have done it in nineteen minutes, in one instance. Of course, thoroughness is not sacrificed to celerity. No ligature is applied during the entire operation; all vessels are clamped, the larger ones doubly, and cut in between. After the main vessels have been secured near the large axillary and subclavian vessels, the clamps first applied can generally be removed and, if necessary, be used again toward the completion of the operation. It is necessary to have 72 clamps at hand. The operation carried out in this way is anatomic, blood saving, thorough, safe, and can be done in a comparatively short time. So far as I can see, its technic can not be improved on, except it were to make a temporary resection of the clavicle at the place where the subclavian vein disappears under it, in order to thoroughly remove the glands of the supraclavicular space. However, it has been my experience that if cancerous glands are present in this region, the patient is invariably beyond surgical help. I know of no case in which a permanent cure was effected when these glands had become involved. This operation was conceived by me in the early part of the year 1894, and first carried out in September of the same year, and by a peculiar coincidence, almost simultaneously published with that of Halsted. As will be seen, it materially differs from that of Halsted's operation. The distinct feature of this method is, that it works its way from above and outward, downward and inward, instead of the opposite way, as Halsted does. Thus the muscles are first divided at their insertion and the trunk of the vessels primarily secured.

DR. J. CLARK STEWART—My idea as to the dangers of an exploratory operation done with the breast *in situ* is largely based on theory, but there certainly are strong theoretical objections to its use. While I must admit Dr. Bloodgood's statement as to the results of this variety of exploratory procedure at Johns Hopkins, he can certainly be accused of inconsistency in this matter, as when I last visited that hospital

the rule was that only one person could examine a case of malignant disease of the breast for fear that, by the manipulation, the disease might be spread to the axilla. Certainly if there is so much danger of involving the axilla by an ordinary examination there must be equal or greater danger by the direct pressure of the knife and other manipulation in the exploratory operation as practiced by him. The idea of my paper was to encourage simplicity and uniformity of procedure, as, if it were generally admitted that any tumor in the involuting breast justified amputation of the breast, then the matter of diagnosis would be very greatly simplified. Certainly, aspiration of doubtful tumors must, in light of our present knowledge, be an unwise procedure, and Dr. Abbe's advice to country practitioners that in the use of the aspirator they have done their duty by their patients with doubtful tumors of the breast, is certainly to be condemned.

HYPERIDROSIS PEDUM AND ITS TREATMENT BY BATHS OF PERMANGANATE OF POTASH.*

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DEFINITION.

By hyperidrosis we understand an excessive production of sweat due primarily to anomalies of the nerve centers influencing the sweat secretion; and secondarily, to circulatory disturbances depending on the altered state of the vasomotor nerves.

The definition tries to embrace the two main central causes of overactivity of the sudoriparous glands. It will be shown later that there are also peripheral causes for hyperidrosis. It is impossible to determine how much the other follicular secretions—those of the sebaceous glands and the hair follicles—contribute to the volume of exuded material. We have no reliable method of separating both kinds of secretions from each other. Already Meissner[1] maintained that the coil glands serve as fatty lubricators, and more recently Unna[2] tried to prove that the sebaceous glands contribute only in a small degree to the function of lubricating the skin with fatty material, and that the coil glands mainly perform this office. The secretion of the sebaceous glands, he asserts, serve mostly to grease the hairs within their follicles. Kaposi,[3] Ziemssen,[4] Torok,[5] and others, while not denying the fact that the coil glands contain fat cells, yet uphold the theory dear to us all, that the coil glands are the main sources of the sweat.

PHYSIOLOGY OF PERSPIRATION.

Perspiration is a secretory and excretory process of the system. It is to be regarded as a supplementary respiration through the skin and, if not paramount to the lung respiration, yet in certain co-ordination to it. When the perspiration becomes condensed because it is secreted too voluminously to be evaporated speedily, we call it sweat, and the process of doing so "sweating." This is a more correct term to express fluid accumulation on the skin than the word "perspiration," which really means only skin breathing by evaporation. But its usage, although not correct, is sanctioned by custom.

The net-work of capillaries of the skin is the origin of a perpetual exhaling process, an evaporation of moisture which takes place almost unnoticed and unfelt, and called, therefore, *perspiratio insensibilis*. It consists of a carbonic dioxid gas as an end-product of oxygen burning-up, which takes place in the capillaries of the lungs as well as in those of the skin.

The so-called *materia perspiratoria* as it appears on the skin, is derived mainly from the coil glands, and in a minor part it is the result of a transudation from the papillary vessels and intracellular sap-channels of the epidermis. Both components of this excretion appear in the mouth of the sweat-pore, as sweat. The sweat, therefore, is a complex mixture of different origin and sources, and presupposes a healthy, well-working, follicular apparatus and nerve influence. The sweat secretion stands mainly under the influence of the central nervous system; in a minor degree it depends from the circulation and the blood pressure in the capillaries, which again is influenced by the impulses which govern the state of the vasomotor nerves. This influence may be of central (psychic, sensory, etc) or peripheral origin. (Irritation of different kinds, caloric influences, etc.)

For instance, I have repeatedly noticed excessive sweating in patients treated with electricity. That reflex irritation influences the sweat secretion is shown also by the fact that even an amputated limb could be made to sweat when irritated by electricity. This goes to show that the vasomotor nerves carry also sweat-secretory filaments. Coyne[6] has found peripheral ganglia of the sweat glands. The coil glands, therefore, or the glomeruli of which they consist, must be looked on as so many minute central organs open to central as well as to peripheral influences. Luchsinger[7] thinks that the sweat nerves are solely of sympathetic origin. Adamkiewitz[8] attributes to them a spinal origin also. Strange and unexplained, however, for the present are the contradictory phenomena of excessive as well as retarded sweating, due to the identical influences. Parts affected with paralysis may show sweating, as do also those parts irritated or excited. For instance, facial paralysis and facial neuralgia. Vulpian[9] explains this by assuming that, beside the excito-sudoral filaments of the sympathicus, there are also inhibitory filaments running alongside, which influence sweat secretion. This would then represent the central and, by the way, the most common influence, while the fine net-work of nerves running from the ganglia to the glomeruli of the coil glands would represent the stations or entrance for the peripheral influences governing the different enunciations of sweat secretions. That cerebral centers for the sweat secretion can also be assumed to exist has been shown by Bloch[10] ("Unilateral Perspiration After Fracture of Temporal Bone"); Bouveret[11] ("Gumma of the Brain"), and Adamkiewitz[12] ("Ataxia of the Arms Due to Cortical Lesions").

Hyperidrosis has been reported to exist where depressions of the brain prevail. In the comatose conditions of acute infectious diseases; in systemic intoxications,

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1. Jahresb. f. Anat. u. Phys., 1856, p. 285.
2. Handbuch d. Spec. Pathol. u. Ther., vol. xiv, p. 92.
3. Hautkr. III, Aufl., p. 140.
4. Vol. xiv, p. 117.
5. Eine Erklarung d. Krit. Schweisses. Pester Med.-Chir. Presse, 1901, No. 29.
6. Compt. rend., 1878, vol. lxxxvi, p. 276.
7. Archiv f. ges. Phys., 1878, xviii, p. 494.
8. Die Secr. d. Schweisses, Berlin, 1878.
9. Cited by Geber in Ziemssen's Handb. d. Sp., Path., u. Ther., vol. xiv, p. 276.
10. Thése de Paris, 1880.
11. Des Sueurs Morbides. Thése de Paris, 1889.
12. Ziemssen: Ibid., 277.

like chronic lead poisoning; in the depressive state of acute alcoholism, in calculous and toxic nephritis. From these idiopathic hyperidroses, we may distinguish the symptomatic ones: The critical sweats in pneumonia and typhoid; the profuse acid perspiration in rheumatism, the colliquative sweat in phthisis and in pyemia, hysteria, neurasthenia, anxiety, sometimes cause general hyperidrosis due probably to spinal irritation.

Peripheral influences, like too warm dressing, hot baths, overexercise, hot beverages, cause heat accumulation. It seems that in these instances the capillary hyperemia stimulates the coil glands to a more active secretion.

Very little is known about the structural changes of the coil glands in connection with hyperidrosis. According to Mracek,[13] only in one instance has such an examination been made by Virchow, who found fatty degeneration of the epithelium of the coil glands in a phthisical patient.

Beside general and local, unilateral and crossed hyperidrosis, there are also qualitative changes of the sweat secretion. It may contain products of metabolism in more than the usual minimal proportions. In anuria, the skin has been found covered with a dew-like film of urea crystals. At times the fatty acids, salts and other organic and inorganic substances had been found in disproportionately large quantities. Such a perspiration will already be secreted with an odor: osmidrosis or odorous sweat. It differs from bromidrosis, where the disagreeable odor is due to a decomposition of the sweat after it had been secreted. Other qualitative anomalies of sweat secretion are chromidrosis, hematoidrosis, etc.

The prototype of bromidrosis is the excessive perspiration of the feet. This underestimated ailment may be the source of the greatest unhappiness to its bearer. The penetrant odor, in spite of the most scrupulous cleanliness, remains insuppressible. It makes the bearer a nuisance to his surroundings, stamps him socially impossible, encroaches on his earning and producing capacity, and transforms the sunniest disposition into a recluse—or to an obtrusive individual.

ETIOLOGY.

The etiology of hyperidrosis pedum is not clear in every case. It may be inherited. Wilson[14] reports a case in a gentleman whose mother was similarly affected; his two brothers were similarly troubled, but his two sisters escaped it. In other cases faulty circulation, due either to active or passive congestion in the capillaries, is the cause. Patients of the latter class will exhibit the symptoms of chloranemia, cold hands and feet, lividity of the toes, fingers and other vasomotor disturbances. In another series of cases an overactivity of the coil glands seemed to be the causative factor. Sometimes the etiology is entirely wanting.

CAUSES.

The causes of excessive perspiration of the feet coincide, as far as pathologic changes are concerned, with the etiology. But there exist contributive external causes which, to a great extent, act as an excitant to the loathsome ailment. Foremost among them is the absolutely irrational footgear of civilized beings. Those who will live in centuries yet to come, where fashion will, it is expected, be subordinate to hygiene, will look on some mistakes of our environment and habiliments, especially footwear, in amazement and pity.

To mention a few instances: The dry and dust-laden heating of our houses by our antediluvian furnaces, so eminently favorable to catarrhal diseases; the enveloping of our heads with starched felt, called hats, and causing more or less developed "full-moons" in seven-eights of men; the squeezing in of the thorax and epigastrium of our women into an armored cuirass, called corset, interfering with respiration and causing the well-known corset furrow or groove of the liver; and last but not least, the encasing of our feet into a water and air-tight, narrow, unyielding compartment, called a shoe, causing the finest corns, bunions, calosities, a selection of malimposed and superimposed toes, and a genuine sweatbath, even in those not inclined to perspire freely. This picture is not overdrawn. But the remedy, simple as it is, will not come to pass so soon. The ancients have shown us what practical footgear is. Their sandals permitted evaporation of their foot perspiration—we civilized beings permit it to be retained. The Japanese gather the contents of their nose secretion in paper handkerchiefs, to be thrown away after use. We of the civilized ones, carefully fold the bacteria-teeming linen handkerchief, preserving its contagious treasury in our pockets and endanger the laundry woman next Monday. At the same time we disseminate, broadcast, instructions on how to avoid infection. The Chinese wear a half-open, permeable, porous shoe; so do the Japanese; and on inquiry I was told that foot-sweats are infrequent with them. Look at a Chinaman. The cleanest part of his economy is his feet, with the snow-white stocking visible and clean.

SYMPTOMS.

The symptoms of hyperidrosis of the feet vary with the intensity of the affection. In milder cases the feet are moist, dewy and overheated. In severe cases the contact surfaces, the tips and the furrows between the backward-bended toes and soles become fissured and painful. In the severest cases the soles look parboiled, whitish, with red inflammatory areas between them; an exceedingly painful condition.

Moderate perspiration of the feet is a normal condition. It assumes a pathologic aspect only when the sweat secretion becomes augmented and when this increased secretion is not evaporated quickly enough, and this it can not do with our footgear. The sweat, as such, even when secreted in increased quantities, is in most cases devoid of any odor. This is plainly evidenced by hyperidrosis of the palms of the hands, where there are only sweat and no sebaceous glands present. This surface produces, so to say, the purest and unadulterated perspiration. Being uncovered, evaporation from the palms is also unhampered. On the contrary, there are many points which make the feet predestined to fetid perspiration. Foremost is the increased and pent-up sweat secretion, which undeniably contains fat. Contributive to this is the admixture of sebaceous material from the sebaceous glands so abundantly present on the foot; third, the decomposition of both secretions through moisture and warmth; fourth, the almost absolute lack of evaporation; fifth, the admixture of macerated, softened epidermis, débris; sixth, the persistent motion of the feet, acting as a peripheral stimulant to the sudoriferous glands; seventh, the condensation of vapor—with which the atmosphere surrounding the feet is so highly charged—into fluid perspiration, and finally retarded circulation in the compressed foot and deficient oxygenation of the recurrent blood. Lesser,[15] in Leipsic, has

13. Handb. d. Hautkr., Wien., 1901, vol. I, p. 293.
14. Diseases of the Skin, p. 204.
15. Schweissfuss u. Platfuss., Deutsche med. Woch., 1893, No. 44, p. 1070.

especially drawn our attention to the coincidence of sweating feet and talipes, already emphasized by Trendelenburg,[16] that talipes, even in the incipient stage, predisposes to enlargement of the small cutaneous veins, which in turn act as a stimulant to the secreting epithelium of the coil glands. As soon as the varicosity becomes pronounced, atrophy of the skin and of the coil glands takes place. The hypothesis seems to me a feasible one. I have found analogous conditions in cases of local hyperidrosis of the nose tip, that is, of the skin covering the cartilaginous part. In all such cases there was present a strumous condition, manifesting itself by a thick, quite enlarged organ due to venous stasis, and with abundant sweat secretion. Here also increased amount of carbonic dioxid of the blood seems to generate excessive perspiration.

TREATMENT.

While we may expect some results from systemic treatment in general or unilateral hyperidrosis, by trying to influence the underlying causes, and by the administration, on general principles, of atropin sulphate 1/100 of a grain, once or twice a day, or by agaricin 1/8 to 1 grain t. i. d., and a host of other mostly ineffective remedies, we are pretty powerless with general treatment as regards local hyperidrosis.

In excessive perspiration of the axillæ, palm of hands, inguinal folds, but especially in that of the feet, local remedies only are promising of results, which in most cases are only temporary ones. Like in all intractable affections, the number of so-called "sure cures" is in inverse ratio to their effectiveness. The local treatment of hyperidrosis pedum could be divided into a feasible and unfeasible mode of treatment. It is a seemingly strange division, but a rather apt one. The question is, shall the reign of irrational and unhygienic footgear remain supreme forever, or not? If the former is the case —and I fear it will be—let us abdicate and be content to attain only temporary cures. Permanent cures will only be possible when our footgear becomes rational, natural and hygienic, as was that of the ancients. As this is not intended to be a symposium on shoes, the intricacies of which the author professes neither to understand nor to exploit, these rudimentary remarks should only give the hint that a rational treatment of excessive footsweat should of necessity begin with a reform of the useful commodity of footwear. But, in spite of all the disadvantages, I do not hope for a reform, and under the circumstances we will have to confine ourselves to the second or feasible part of interference, i. e., to treat the perspiring foot as best we can, with the irrational footwear as an impediment.

Before enumerating, partly at least, the different external remedies, I will dwell, cursorily only, on the old question: Is there reason to fear suppression, and should excessive perspiration of the feet be treated? From time immemorial, it was held that suppression of the cutaneous exhalation causes the accumulation of deleterious waste products and manifold illnesses. The experiments of shaving and varnishing guinea-pigs and rabbits proved deleterious to these animals. In larger animals whose evaporative surface and weight are more proportionate, the consequences are less stormy; but urea in the urine was increased by this experiment. The tarred patients of Hebra did not show any pathologic symptoms besides those of absorption of tar products through the lungs and through the skin. Senator's varnished patients did not exhibit any symptoms at all. To me it seems that Nature, having provided the soles with about 2,600 (Zulch) sweat glands to the square inch against 400 on other regions, and about 640 on the dorsum of the foot up to 1,111 on the palm of the hand (Kölliker), has clearly shown her intention of utilizing this vast apparatus for the purpose of excretion. We find that the skin exhales from 3 to 30 grams of carbon dioxid gas and excretes about (Seguin) 917 grams= 1/64 of the body weight—a day of fluid secretion. The urea is present only in very small quantities and with other organic and inorganic salts, the sweat is by no means an indifferent product. Different opinions to the contrary, it is not a simple transudation, but a real secretion, and the coil glands, therefore, must be regarded as excretory organs also. It is therefore obvious that the old contention about the danger of suppresion of footsweats has some foundation; but the fabulous tales of the dire consequences are the results of misconstrued humoral-pathologic doctrines. Already Barensprung[17] and Hebra[18] have held that suppressed perspiration is not the cause but the consequence of some illness, i. e., the anemia resulting from it. The thousands of other sweat glands and the kidneys will be able to cope with the excretory demand of the system. Hyperidrosis must be regarded as a pathologic overactivity, and as such may be combated with impunity, as we do seborrhea or polyuria. Unfortunately, we are as yet unable to cure excessive perspiration of the feet permanently, and therefore, those who do feel inclined to dread suppression need not be uneasy.

The external or local treatment is the only available means then, in hyperidrosis pedum. The number of remedies is legion, and they are employed mainly for their exsiccating influence on the epidermis. I may be permitted to forego a classification and enumeration of them. I will only casually mention alcoholic lotions of resorcin, salicylic acid, tanin (1 in 200), also bichlorid (1 in 400 water), Burow's solution, boric acid, alum, soda solutions, vinegar water, naphthol (10 to 200) which may benefit mild cases. In severe cases more powerful remedies are employed. For the fissures, a 5 to 10 per cent solution of nitrate of silver application is used. Kuster[19] recommended salicyclic acid as a lotion and as a dusting powder. Heussner[20] recommends balsam of Peru 1.0, acid formicum 5.0, chloralhydrate 5.0, alcohol 100.0, to be applied with cotton. He thinks that the formic acid acts as an inhibitory agent, and that the nascent formic and other rancid acids contained in profuse perspiration, when eliminated too quickly, permit the sweat to become of alkalin reaction. The bacterium found by Thin,[21] called bacterium fetidum, which bears strong resemblance to the bacterium coli commune, will, in patients not scrupulously clean, change the urea in the sweat into carbonate of ammonia, thus rendering the sweat alkalin and easily decomposed. This formic acid is also the active principle of chloral employed in 5 per cent. solution in alcohol. It develops hydrochloric and trichloracetic acid and splits into chloroform and formic acid. On this principle are based the most patent remedies for this ailment. Recently formalin and tannoform have been recommended on the same principle. The former is a very serviceable but painful remedy, especially when fissures are present. Its fumes irritate the mucous membranes. I would not recommend

16. Verhandl. d. Deutsch. Ges. f. Chir., April, 1892, i, p. 52.

17 and 18. See their text-books.

19. Allg. med. Centralzeitung, 1876, No. 82.

20. Deut. med. Woch., 1895, p. 730.

21. Proceedings of the Royal Society, 1880.

its use in a stronger than a 5 per cent. solution. Fredrique,[22] Adler,[23] Richter[24] and others recommended tartaric acid. It is used as a spray in a 10 to 20 per cent. strength; after evaporation a fine, white, dust-like deposit remains on the skin. It is also used as a dusting powder.

The best known among these remedies is salicylic acid. It was the official remedy for sweating feet in the German army. The formula is: Acid salicylici, 3.0; amyli, 10.0; talci, 87.0. Kobert[25] recommends: Talci, 100.0; aluminis usti, 20.0, and praises this combination as dehydrating, astringent and devoid of danger, in contrast to the much-used chromic acid, which is employed in 5 per cent. solutions. The soles are painted with it on three consecutive days, and after drying a dusting powder is applied. In one or two weeks the epidermis becomes detached in large horny layers. It leaves a very sensitive, thin and soft new skin underneath. It is a good but very dangerous remedy. Its absorption in form of a chromic salt through the blood may cause nephritis, hydrops and different ulcerations. Kobert would admit its use only in war, when an efficient infantry is imperative; else, other less dangerous remedies should be used.

As to the well-known Hebra's cure, it consists in the application of his diachylon ointment, spread on coarse linen and renewed every twenty four hours. This is kept up for two weeks. Soon the epidermis comes off in large yellowish layers. The new epidermis then appears white, soft but somewhat sensitive. The disadvantages of this method are: that while it may be employed with the patient about, yet, to be successful, it is better for him to enjoin rest in bed. Beside, it is an unclean and uncomfortable method and ill-adapted to our climate.

The treatment I advocate is devoid of all dangers and lacks the unpleasantness of the remedies just enumerated. It is not a new remedy; no unutterable synthetic formula gives it the dubious glory of supplying a long-felt want. It is an unassuming friend, our old honest permanganate of potash. Neither is its employment in regard to foot-sweats new. All I claim as original with me is the manner and its concentration in which I employ it. It is applicable in every stage of the disease, and fissures between the toes are no contraindication to its use. The theory of its employment is a threefold one. First, its facility to give up its oxygen in the presence of organic matter; second, its precipitation on the skin as manganese dioxid in a layer proportionate to its concentration; third, the exsiccating and in stronger percentages its keratotic action on the epidermis. It imbibes itself in the epidermis cells, percolates through them, acts as an astringent to the papillary vessels and is taken up by the mouths of the pores and follicles. In his histologic researches on reductive substances used in skin affections, like tar, anthrarobin, etc., Lutato[26] has shown, as did Unna,[27] with ichthyol and resorcin; Buck[28] with pyrogallol and Hodara[29] with salicylic acid and chrysarobin, that they act differently according to concentration, mode and durance of application, and cause artificial reduction of living tissues. Mild percentages cause a thickening and hornification of the epidermis, inhibit the growth of prickle cells, narrow and close the lymph channels, and act as astringent to the papillary vessels. In stronger concentration the epidermis becomes macerated, the prickle layer undergoes disintegration and softening of the collagen tissue takes place. To avoid this latter eventuality so common with chromic acid, there is, in my opinion, no better substance than permanganate of potash. Its action is not strong enough to macerate the skin, but it will harden and toughen it without rendering the underlying new skin congested and sensitive.

Permanganate of potash, diluted solutions of which are of rose color, stain the skin a yellow brown; concentrated solutions, which are of a deep violet-red color, will stain the skin a deep brown. In its highest concentration (5 per cent.) it stains almost ebony color. This color scale, although not exact, serves as a good practical index for estimating the strength of the solutions. It is interesting to note the way the different parts of the immersed foot stain. The horny substances, nails and corns take the stain almost at once and hold it to the last. The lunulæ of the nails remain unstained for a few days, making a rather striking appearance of color differentiation. Next come the callous places, then the heels, ankles and dorsum of the leg and the interphalangeal spaces. At those places on which the body weight rests and on those which are in apposition to each other and to the shoe, the stain becomes effaced until the next bath, but finally retains the stain, especially when the highest concentrations are used. These places are the skin over the achilles tendon, the flexor parts of the toes and the cushion-shaped metatarsal region. Finally, after a few days' use of the stronger solutions, the whole foot becomes stained and takes on a deep mahogany and the nails an almost ebony color. The treatment begins with taking a footbath before retiring. We start with a warm footbath of borax water and soap, followed by a thorough scrubbing and careful drying. With a cotton pledget soaked in benzine the foot is now thoroughly cleansed from all epithelial débris. No more cleansing footbaths are taken until cessation of treatment.

These preliminaries finished, we immediately commence treatment. Irrespective of the severity of the case we start with a 1 per cent. solution or 10 grams to 1,000, equal to 2 drams to quart of water, temperature 104 degrees. It is best to use a china wash bowl and preferably a separate one for each foot. The fluid should be ankle-deep; duration of immersion fifteen minutes. This done, the foot is placed on some old toweling to drain and not rubbed off, but left to dry, which is accomplished in a remarkably short time. The patient now goes to bed, covering his feet only lightly. A pleasant feeling of dryness is felt in contrast to the accustomed damp sensation. Next morning the whole foot is slightly dusted with the following powder: Potass. permanganatis, 13.0; aluminis, 1.0; talci, 50.0; zinci oxydi, lapidis calaminaris, aa 18.0. The interphalangeal spaces must also be dusted and separated with absorbent cotton. Daily change of stockings and shoes is desirable.

The next evening the permanganate bath is again taken. We will soon notice a scum floating on the surface. This is due to the oxydation of organic matter which has accumulated since the last footbath. As the cure progresses this scum will be noticed to become less, finally appearing only on the surface of the red fluid as a faint light streak of flotsam. After fifteen minutes the foot is taken out, allowed to dry and the patient goes to

22. Annal. de la Soc. Med. de Gand., 1886, No. 9.
23. Prager. med. Woch., 1896, p. 434.
24. Allg. med. Centralzeitung, 1897, No. 73.
25. Fortschr. d. Med., 1890, viii, p. 36.
26. Monatsh. f. Pract. Dermat., 1904, vol. xxxviii, No. 6, p. 257.
27. Dermatol. Studien, 1886.
28. Monatsh. f. Pract. Dermat., 1895, vol. xxi, No. 12.
29. Ibid., 1896, vol. xxiii, No. 3, and 1900, vol. xxx, No. 2.

bed. The baths are thus taken for a fortnight or three weeks in increased strength. The average duration of a treatment is two weeks. Most conspicuous and encouraging to the patient is the immediate absence of odor and sensation of comfort as the dryness of the feet and interphalangeal spaces become established. Another noteworthy and pleasing effect of the permanganate baths consists in the painless healing of the interdigital fissures and inflammation around the nailbed caused by pressure of superimposed toes. The disappearance of these concomitant and unpleasant symptoms, which add so much to the discomfort of the patient as to make it noticeable in his gait and distressed facial expression, turns the patient a most willing helpmate to attain a cure. After the third bath the strength of the solution is increased to 2 per cent., i. e., 20 grams to 1,000, equal to 4 drams to one quart of water for each bath. It should be rather warm now, as the permanganate dissolves easier. In the beginning of the second week the footbaths should be taken, 30 grams to 1,000, i. e., one ounce to a quart of very warm—as hot as can be borne—water. The last three baths should be taken full strength: 60 grams to 1,000 or two ounces to a quart of water, temperature as before. As the presence of alum enhances the liberation of oxygen, one dram of it may be added to the permanganate.

I will add here that neither the weak, medium nor saturated solutions cause the slightest pain, burning or caustic sensation. The fissures by this time have filled up with a fine precipitate of manganese dioxid, under the cover of which healing has taken place. The foot, which until now has been stained a dark mahogany color, will assume under the influence of this concentrated solution an almost jetblack hue. The precipitation on the surface of the skin is now so copious that it looks as if varnished, and accordingly the drying takes place almost immediately as the foot is taken out of the bath. In a week after cessation of treatment, the skin commences to desquamate slightly; first on the dorsum, then in the interdigital spaces, and finally on the sole and heels; the nails, as I said before, retaining the stain for months. It may be mentioned as an unintended but welcome consequence that the stained corns become friable and are easily removed.

By this time the sweating has ceased, the cotton between the interdigits showing only the slightest perceptible trace of dampness but no fluid accumulation. The last-named incident serves as a criterion for the cessation of treatment. In every other place the fluid perspiration has already ceased days before the interdigital spaces have become dry. When this latter state is reached, cure has been obtained and treatment may be abandoned. The dusting is now to be continued morning and evening, and pledgets of cotton be worn only through the daytime. It is advisable to wear blotting-paper betwen sole and shoe and have it changed daily. Every drug store sells some kind or other of cut and shaped paper soles, for a trifle. Low-cut shoes and thin hose are imperative as long as weather permits.

The foot is now left alone. Some tightness of the skin is now felt, and the pleasing sensation of dryness, ability to walk unmolested, the grateful impression of a dry, odorless stocking when undressing, a foot devoid of dampness and malodorous emanation, a pleasing sense of cleanliness which could not be obtained by the most vigorous washing, make the patient feel happy, contented and socially again possible.

The only disadvantage, if such it is, is the staining. But this is the case also with tannoform and chromic acid, the permanganate sharing none of their other unpleasant properties. As the staining carries with it the exsiccating and curative properties, its removal is of course contraindicated. If for any reason discolorization is desired, a diluted solution of oxalic acid, or better yet, the following formula will serve excellently: natrium subsulfurosum, 120.0; aquæ, 250.0; acid hydrochlorici diluti, 60.0. Use with a pad of absorbent cotton. This mixture develops free sulphuric, which is bleaching.

The advantages of this treatment are:

1. The remedy employed is absolutely devoid of any danger, is painless and heals the dreaded fissures without the previous painful application of silver nitrate.

2. It can be employed in every stage and form of sweating feet.

3. Relapses are less common than with any other method and rarely appear before the third month.

4. The use of the dusting powder has in some cases made the interval even longer.

5. Its action consists in its reducing power and consequent keratisation of the epidermis. It stands to reason that it penetrates into the secretory cells of the coil glands, inhibiting or decreasing their physiologic overactivity.

6. After desquamation the new epidermis is not sensitive, and walking is not impaired as after the use of chromic acid.

7. The mode of employment—medicated footbaths—is a pleasant one.

616 Madison Avenue.

DISCUSSION.

DR. L. DUNCAN BULKLEY, New York City—I have had a good many cases of hyperidrosis of the feet and have found it a very troublesome affection. I have not used permanganate of potash in the way suggested, but I have generally found fair results from foot baths of white oak bark and the rather free use of salicylic acid in the stockings; the acid, thoroughly powdered, may be mixed with starch and chalk. Two per cent. to 5 per cent. of the acid suffices, and generally this proves to be a very satisfactory mode of treatment. I should like to remind the gentlemen present of the value of permanganate of potash in other conditions. I do not know how much it is being used to relieve itching, but I am employing it continually in chronic eczema, especially about the groin and legs. A 2 or 3 per cent. solution of permanganate of potash is a very efficient antipruritic. I learned it from a patient, I think, of Dr. Montgomery of San Francisco.

DR. E. C. HAY, Hot Springs, Ark.—I have used salicylic acid in alcohol in this condition with excellent results. I had one case in a physician, a friend, who after trying everything else, used two drams of salicylic acid in eight ounces of alcohol. For six or seven years I have invariably prescribed this and have never had it fail. It is absolutely painless. I have the patient take a footbath on retiring at night, and then apply this solution to the soles of the feet, being careful not to get it on the hands; it is applied between the toes with a brush. Three or four applications will destroy the odor, and its use is continued until the trouble entirely subsides.

DR. A. RAVOGLI, Cincinnati—Hyperidrosis is an interesting subject. In armies, especially in the infantry, men are subject to hyperidrosis, which makes them incapable of taking long marches. Formalin has been used recently in the armies to prevent and also to cure hyperidrosis of the feet. Formalin has a very good astringent action on the secretion of perspiration. It diminishes this secretion, and destroys the odor resulting from the excessive perspiration. Formalin, 2 to 5 per cent., is used for the bath, and is also used to paint the feet of the infantry. In Switzerland a 40 per cent. solution is applied on the normal skin and the feet washed immediately. Also a

few drops of a 40 per cent. solution of formalin are put into the soldiers' shoes, and it has been found that in this way they are able to stand marches and also suffer less from this excessive perspiration.

DR. LUDWIG WEISS—I know of these remedies and they are good. Salicylic acid has been used in the German army, but I have found that it leaves such an irritated, inflamed skin behind as to make walking painful. I would warn against the use of formalin; it is exceedingly painful, especially when there are fissures, and patients get inflammations which prevent them from walking and confine them to the house. I would again plead for the extended use of permanganate of potash as an innocent, painless and very effective remedy.

X-RAY THERAPY IN SKIN DISEASES.*

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PHILADELPHIA.

As a basis for this paper, I have selected a few cases which seem to be instructive and illustrative in the treatment of nevus, lupus involving the nares and the interior surface of the lips, morphea, and acne, with hypertrichosis, and epithelioma of the lip.

CASE 1.—Miss B., aged 15, has had a birthmark on the left side of the nose, near the inner canthus of the left eye. During the year preceding treatment it seemed to be increasing in size. It was not elevated and was about the size of a dime.

Treatment.—X-ray treatment was begun Jan. 28, 1903. A soft tube was used for a period of ten minutes, at a distance of eight inches, with five amperes of current. Eight such exposures were given during a period of six weeks. At the end of that time a distinct dermatitis was produced, but not to the extent of vesiculation. This was followed by desquamation and disappearance of the lesion. There has been no recurrence after a year.

CASE 2.—Miss M., aged 39, was referred to me by Dr. B. F. Hawley of Philadelphia. She has had a very extensive birthmark, covering almost the entire face, the right side of the chest and the right hand. There had been some increase in the extent of the area involved since birth. Here and there on the forehead and left cheek there are a few small patches of nearly normal skin. On the right anterior portion of the face the affected area is uniformly elevated and thickened. The remainder is not elevated above the level of the surface of the skin. The color was port-wine.

The congestion is increased by cold and by emotional excitement. Under such circumstances it became a distinct purple. Over a great part of the area separate venules could be seen which are closely interwoven.

Treatment.—On account of the uncertainty of the outcome and the extensive area involved, treatment was begun only on the hand, March 12, 1903. The same technic was used as in the previous case. Thirty-six exposures were given to the hand during a period of three months. The first effect noticed was a change of color from a port-wine to a deep red. This later faded to a pink, and now is not noticeably different from the surrounding skin except when exposed to cold or during emotional excitement. Another early effect noticed after twelve treatments was the tardy return of blood when it was pressed out of the affected area. The nails became brittle, but these have recovered to a great extent. There has been no treatment of the hand for a year.

Treatment of the face, on account of the extensive area involved, has not at any time been forced. I treated the face three times a week for two months, then twice a week for a month, and once a week for eight months. She has had sixty treatments in all on the face, during a period of fourteen months. As a result, the color has been changed from a port-wine to a pink, and when the patient is quiet the areas are scarcely noticeable. The thickening of the skin on the right cheek is much less marked, and when the blood is pressed from the affected area it returns less quickly.

Jutassy[1] reports good results after producing a dermatitis to the extent of ulceration. Pusey[2] reports permanent improvement after producing an acute dermatitis.

From this method of treatment of nevi, I believe we can expect very marked improvement, but not absolute cure, except when the treatment is carried to the extent of producing ulceration, which is not always advisable.

The improvement will consist of some atrophy and a change of color approaching that of normal skin. This improvement will occur more quickly if a distinct reaction is produced. The boldness with which we may produce a reaction will depend on the location and the extent of the area involved.

CASE 3.—Dr. L. M., aged 40. Referred by Dr. John V. Shoemaker. He has had lupus vulgaris five years, involving the chin, the lips and both sides of the nose, also the inner surface of the lips and the interior of the nose. He had been treated by various measures, principally caustics. It improved at times, but never disappeared.

Fig. 1.

Fig. 2.

Fig. 1.—Case 3. Lupus vulgaris. Before treatment.
Fig. 2.—Case 3. After thirty treatments in eight months.

Treatment.—X-ray treatment was begun Oct. 1, 1903. At this time the disease was active on the lips, with a few nodules on the chin, and distinct disease on either side of the nose and on the interior of the nose. The inner surface of the upper lip was also affected. Photograph No. 1 gives a fairly good idea of the extent of the external involvement. Thirteen treatments were given in eight weeks. A soft tube was used on each side of the nose for about eight minutes, at a distance of ten inches, using about four amperes of current.

Results.—At the end of eight weeks decided improvement was noted, and induration only remained at the inner canthus of the left eye and at the right ala of the nose. Since this time he has been treated nearly once a week, with the result that the lupus seems to have disappeared both from the surface and from the interior of the nose, except a small tubercle at the ala of the nose.

During the course of treatment a bone-like projection appeared at the inner canthus of the left eye and was thought to be an exostosis. This disappeared completely under treatment.

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1. Jutassy: Pest. med. Chir. Presse, 1900, xxxvi, p. 73.
2. Pusey: The Roentgen Rays in Therapeutics and Diagnosis, 1903.

In addition to the disappearance of the active lesions, the scar tissue, which was quite thick and stiff, has nearly disappeared. Thirty treatments in all have been given during eight months. (Fig. 2.)

The treatment was several times carried to the point of a mild dermatitis, such as is shown by an erythema.

The points of special interest in this case were: 1. The disappearance of the lesions within the nose and beneath the lips. 2. The development of what appeared to be an exostosis at the inner canthus of the left eye, which disappeared under treatment. 3. This spicule of bone developed during the course of treatment, but in the protection of the eye this portion had been covered.

CASE 4.—Mr. G. R., aged 41. Eleven years ago he had what he called a fever blister on the lower lip, which lasted two months. Two years ago a similar sore developed on the lower lip, which has progressively increased in size. It had been treated with caustics by a layman.

Treatment.—*X*-ray treatment was begun April 25, 1903. At this time he had an epithelioma on the lower lip about the size of a walnut, which had ulcerated. The submaxillary glands on both sides were enlarged and hard. He had lost weight and was somewhat cachectic. (Fig. 3.)

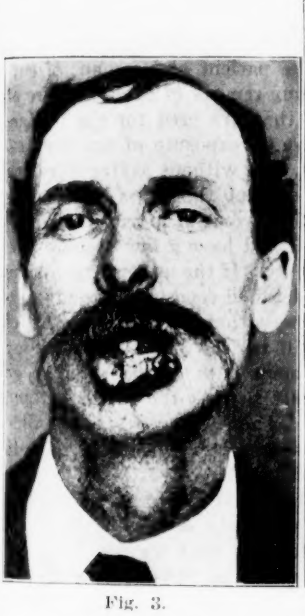

Fig. 3.

Fig. 4.

Fig. 3.—Case 4. Epithelioma of the lip.
Fig. 4.—Case 4. After operation and *x*-ray treatment.

The *x*-rays were applied to the growth and to the submaxillary glands. He was given ten treatments during the first month, lasting ten minutes each, with the tube ten inches distant, a two-inch vacuum, and about five amperes of current.

At the end of the first month the growth seemed to be smaller, and the glands were smaller. During the second and third months ten treatments were given. At the end of the third month the growth had shown some decrease in size, and there seemed to be a tendency to heal at the edges. During the fourth and fifth months he received twelve treatments. The submaxillary glands had disappeared, but the growth had not changed. He was showing signs of sepsis (chills, fever and sweats), with increase in emaciation and prostration. He was strongly urged to have the remainder removed by operation. At the end of the sixth month he consented, and Dr. Ernest Laplace removed the growth, leaving the wound open to heal by granulation under the influence of the rays. The rays were applied the next day after the operation, and twelve treatments were given within a month. At the end of this time the wound was healed, and no signs of cancer were present. It has remained well since, which is seven months. (Fig. 4.)

This case was considered inoperable on account of the glandular involvement in both submaxillary regions. These enlarged glands disappeared under the influence of the *x*-ray.

I believe that had either the x-ray or the surgical measures been depended on alone the case would have been a failure, and I think that in all cases of epithelioma of the lip, surgery and the *x*-ray should be combined.

CASE 5.—Miss J. M., aged 25, a case of morphea. An uncle had some new growth on the neck; otherwise the family history is negative. Without any previous symptoms the patient discovered that an area of the skin about a half inch in diameter was a little darker in color and slightly raised above the surface of the surrounding skin at the side of the chest. There was no pain and no itching. Very little attention was paid to it for about two years, when it began to ulcerate. She then visited the skin dispensary of the University Hospital, where she was seen and photographed by Dr. M. B. Hartzell.

Later she came to the skin dispensary of the Medico-Chirurgical Hospital, where she was seen by Dr. E. S. Gans and referred for operation to Dr. W. L. Rodman. Dr. Rodman did not think an operation advisable, and referred her to the *x*-ray department for treatment.

Treatment.—*X*-ray treatment was begun Nov. 14, 1902.

Fig. 5.

Fig. 6.

Fig. 5.—Case 5. Morphea. Before treatment.
Fig. 6.—Case 5. After eighteen months and eighty treatments.

The disease had then existed four years, and the affected area was three and one-half inches in length and one and one-half inches in width. The center was an ulcer which showed no tendency to heal. This was an inch and a half in length and a half inch in width. Surrounding this ulcerated area was an area of scar-like tissue. She had a sensation of soreness at this point, but no other pain. There was a sero-purulent discharge present, and at times bleeding. She was treated three times a week, ten minutes at each exposure, with a vacuum corresponding to a 2 to 3-inch air gap, at a distance of six to twelve inches. After the fourth treatment there was less discharge. After twenty-five treatments and two months' time, the ulcer had healed, but an indurated scar one and one-half inches in length and a half inch in width remained in the center. After forty-five treatments and eight months' time the scar in the center was still hard. In other portions the skin seemed to be normal.

The patient left the city at this point and the treatment was interrupted for three and a half months. She returned Sept. 30, 1903. At this time the central scar was still present. In addition there was a small tubercle about one-eighth of an inch

in diameter noticed lying posterior to and entirely outside of the previously affected area. In the previous treatments the surrounding skin was protected, and this tubercle developed beneath this protection. Treatment was again instituted, but the patient was very irregular in attendance, and only eleven treatments were given in five months.

At the beginning of March, 1904, the tubercle had increased in size and a smaller one developed anteriorly. Dr. M. B. Hartzell very kindly excised the larger tubercle and examined it. He says: "The sections showed comparatively little departure from the normal. The chief changes consisted in a flattening out of the papillary layer of the corium, and a diminution in size and number of the blood vessels. There was absolutely no indication of epithelial overgrowth."

Following this, treatment was given more actively. Thirty-five treatments were given in two months. At the present time, one month after treatment, nothing remains but a scar one inch in length and a fourth of an inch in width. The wound of the excised tubercle healed promptly and the tubercle lying anteriorly to the old lesion disappeared.

This case was shown a number of times before the Dermatological Society of Philadelphia, where the diagnosis of morphea was made. It was suggested, too, that a carcinomatous change might be taking place. This was cleared up by Dr. Hartzell's examination. The patient had for a number of years refused to allow a portion to be excised.

Results.—The results obtained by treatment in this case have been fairly good, but far from brilliant. It has required eighteen months and eighty treatments to change a patch of morphea three inches in length and one and a half inches in width to a scar one inch in length and one-fourth inch in width. While the results have not been all that I had hoped for, they are better than were obtained by any other measures.

After the excellent work of Campbell,[3] Jutassy,[4] Pusey,[5] Stelwagon,[6] Engman,[7] and others, I shall not take up your time in reporting cases of acne, and will mention but one case on account of the heavy growth of down.

CASE 6.—Miss M. G. was referred to me by Dr. E. S. Gans. She had had acne twenty years. She was treated by all ordinary methods. After twenty-two treatments and three months' time the lesions had all disappeared, leaving the skin smooth and soft. The down which was present at the beginning of the treatment was less noticeable, but was still objectionable. The patient insisted on continuation of the treatment for the removal of the down. Thirty additional treatments were given in seven months. During this time it had been removed three times, and recurred twice. I shall treat her once a month for a few times to prevent recurrence.

Ordinarily, I would not advise the *x*-ray for the removal of down. I believe, however, that it can be done successfully, but will require repeated removals.

CONCLUSIONS REGARDING ACNE.

As to the treatment of acne with the *x*-ray, I think we can draw the following conclusions:

1. It meets the indications more satisfactorily than anything else.

2. Relapse is not frequent as in older methods, and is slight.

3. No burns of any serious degree are necessary during the treatment.

4. If the treatment is not forced to the extent of a burn, there is probably no danger of atrophy of the skin.

5. No reaction should be produced beyond a mild erythema, and this degree should be reached slowly.

6. It is not necessary to produce an erythema, but if the treatment is carried to this degree the results will be hastened.

7. The hair, eyes and eyebrows must be carefully protected.

8. A tube with a vacuum which will back up a two-and-one-half inch air gap, at a distance of ten to twelve inches, with a current of two to five amperes for five to ten minutes on the area treated, will probably give the best results.

9. In the average case, about three months' time and twenty to thirty treatments will be required to produce a cure.

DISCUSSION.

DR. M. B. HARTZELL, Philadelphia—I saw the case before it had been treated. While the case is reported as morphea there may be some doubt about the diagnosis. It may be that this was one of the morphea-like flat epitheliomata which occasionally are observed. An examination of the small lesion left on the outside of the patch would seem to confirm the diagnosis of morphea; if this lesion is a part of the disease the diagnosis is fully established by microscopic examination. The case is extremely interesting both from the point of view of diagnosis and the excellent results following treatment by the *x*-ray.

DR. J. C. PRICE, Scranton, Pa.—I think that the time of exposure, distance of tube from the patient and amount of current used is very important in our reports of cases, because of the various kinds of apparatus that are used for the production of *x*-ray. One man will give an exposure of ten minutes, one an exposure of five minutes, and without saying anything about the probable strength of current that goes through his tube or the vacuum of his tube. If you put a ten-ampere current through a primary of a coil and have a low vacuum tube you can burn a patient very quickly. If the men who are doing this work intelligently send out detailed reports, the many physicians who buy a static machine without having any idea of the physics of the apparatus, will be less apt to use the *x*-ray indiscriminately. If they have some data of that kind to go on, they may take enough interest to look the matter up and find out what they are doing. I think the *x*-ray has a wide field in the treatment of skin diseases, but it is surely going to get a black eye unless it is used intelligently. I see they are putting on the market an anometer that will measure the current from a static machine or secondary of a coil. If this is successful it will be of advantage in that we can then give exact doses. Anyone familiar with the physics of coils and static machines knows that no two coils will produce exactly the same secondary discharge with the same amount of current going through the primary, and that no static machine will produce the same amount of current from day to day, but varies widely with the varying conditions, so any instrument that will accurately measure the current going through the tubes will simplify matters greatly. We have some men who advise a static machine in preference to a coil for these treatments; it seems to me that when we come down to an exact dosage a coil is more reliable than a static machine. I wish to report a case of sarcoma treated by the *x*-ray. It was operated on by a surgeon in September, and referred to me for recurrence in January. The tumor had been sent to New York to be examined in a pathologic laboratory and it was reported to be a small round-celled sarcoma with some pigmentation. There was recurrence as large as a hickory nut. I intended to ray the growth a few times and then have it removed, but the patient's family objected to further surgery and I kept on with the ray. I can now report, fifteen months after she was referred to me, that it has absolutely cleared up. Patient is 16 years old and is now in good health.

DR. A. W. BRAYTON, Indianapolis—I have no *x*-ray installation myself; I am kept busy, however, repairing the injuries made by the *x*-ray machines in my vicinity. If I were to seek cheap electrical apparatus, I know of nothing I could buy

3. Campbell: THE JOURNAL A. M. A., Aug. 9, 1902.
4. Jutassy: Fortschritte a. d. Geb. d. Roentgenstr., vol. III, No. 3, p. 119.
5. Pusey: Journal of Cutaneous Diseases, New York, August, 1903.
6. Stelwagon: Journal of Cutaneous Diseases. New York August, 1903.
7. Enman: Interstate Medical Journal, April, 1904.

cheaper of physicians than automobiles and *x*-ray machines. Seriously, however, I have had two cases within three months of diffuse symmetrical scleroderma; one is passing into the atrophic stage, another is in the condition of elastic edema. Neither of the women can dress themselves; one is 28, the other 35. I do not know whether it would be worth while to refer these two distressing cases of symmetrical scleroderma to an *x*-ray therapist for treatment. I know many of them, according to Crocker and Stelwagon, get well spontaneously. There is also a case of xeroderma pigmentosa 12 years of age that I have had under observation from the time of her birth. Her sister, 28 years of age, died from the disease. She developed a sarcomatous tumor of the hand, which grew to the size of her head. If this little girl, who is now in the stage of tumor formation, can be helped by the *x*-ray, I would like to know of it. I also have a case of Darier's disease under observation which is far more extensive and distressing than the one reported by Dr. Lieberthal. If in these rare diseases the *x*-ray is of known curative power, I would be pleased to know it. I have also a case of blastomycetic dermatitis under observation which has had 65 applications of the *x*-ray without apparent benefit. I have readily cured four other cases by the cautery and by erasure. I think the *x*-ray has a very limited sphere in dermatology.

DR. C. W. ALLEN, New York City—In regard to the first cases I have had no personal experience, but I have had remarkably good results in the case of a young lady who has had lifelong ichthyosis, which is similar in character. In regard to xeroderma pigmentosa, I have had a patient under treatment for nearly three years. He has lost one eye; the cancer involving the globe, primarily the cornea, and his physician thought it better to enucleate the globe. Now the condition involves the opposite globe, and just for the present his family physician has put him in the hospital to try something new on the cancer of the opposite globe. The individual skin lesions will disappear. I have cured the man of at least fifteen cancers of the face, but others keep coming, although the ray in a measure keeps them down.

DR. BRAYTON—They will drop off of themselves, or you can take them off with your fingers or a spoon, as large as a walnut. How do you know that the *x*-ray has anything to do with this clearing off that is common in xeroderma pigmentosa?

DR. ALLEN—My personal impression is that the ray does something that the nature of the affection would not account for in the disappearance of the cancerous lesions. My assistant, Dr. Stern, is treating a subject of Darier's disease in his uptown dispensary, and he tells me he is getting very marked results and that his patient is gettting well.

DR. L. DUNCAN BULKLEY, New York City—I reported a case of Darier's disease affected very favorably by the *x*-ray. The patient had been in the hospital for six months and was bedridden for several months. The disease on the feet was completely cleared up, though it remained about the margin of the hair and on the wrists, which places were not thus treated.

THE CUTANEOUS MANIFESTATIONS IN DIABETES INSIPIDUS.

REPORTS OF THREE CASES.*

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Diabetes insipidus is a chronic disease characterized by the passage of large quantities of normal urine of low specific gravity. It should be distinguished from the polyuria of hysteria and chronic interstitial nephritis, and also from the diuresis in connection with meningitis and tumors at the base of the brain.

Since Willis, in 1674, distinguished between the saccharine and the non-saccharine form of diabetes, it has been known that a low specific gravity and the absence of sugar readily separates diabetes insipidus from diabetes mellitus. The hysterical form of polyuria sometimes closely simulates diabetes insipidus, but its transitory nature, taken with its other protean but characteristic symptoms, renders the diagnosis comparatively simple.

Diabetes insipidus is a rare affection of unknown nature, and with no constant anatomic symptoms. As to its rarity, Dr. Osler states that but three cases occurred in twelve years out of a total of 329,000 patients treated in the Johns Hopkins Hospital and dispensary up to 1901, the date of the last edition of his work on "Practice of Medicine." Dr. Futcher of Baltimore, however, reported seven cases in the medical wards of Johns Hopkins, or one in each 50,000 patients, in a paper on this disease read before the May meeting of the Association of American Physicians at Washington the present year.

The occurrence of the disease in youth is shown by the fact that in the 85 cases collected from the literature by Strauss, 36 cases were between 10 and 25 years of age.

As to causation, the consensus of opinion is that the disease results from a vasomotor disturbance of the renal vessels, due to local irritation resulting from various causes. In the secondary or symptomatic form, these vasomotor irritants may be aortic aneurism, abdominal tumors or tubercular peritonitis. Diabetes of either form is especially apt to occur where there is disease of the medulla, as was first illustrated experimentally by Bernard's famous discovery that certain injuries of the floor of the fourth ventricle in rabbits produced an abundant, pale and sugary urine. Probably the majority of the cases originate in lesions of the base of the brain, notably the lesions due to syphilis, as is shown in the fact that four of the Johns Hopkins cases had suffered from syphilis, and that the seven cases seen by Dr. Tyson in consultation were ameliorated by iodid of potash. Cerebral syphilis is not infrequently attended by polyuria and polydipsia.

Dr. A. Jacobi, discussing Dr. Futcher's paper, thought most cases of the insipid form occur in young children seen in family practice; the diabetes followed cholera, anemia or whooping cough. He had seen cases in boys of 7 to 14, from falls on the occiput; these may have been due to tumors resulting from the fall. Some of Dr. Jacobi's cases were no doubt secondary or symptomatic, rather than primary or "idiopathic," as we say of those chronic cases having no discoverable nervous origin. Fright, injury, sunstroke, debauchery and malnutrition may precede diabetes insipidus.

Heredity plays a part, as is shown by Weil's cases. Of 91 members in four generations, 23 had persistent polyuria without any deterioration in health. Trousseau stated that the parents of children with diabetes insipidus frequently had glycosuria or albuminuria.

Diabetes insipidus presents some striking analogies with diabetes mellitus in both etiology and symptomatology, and still more by the fact that the one disease sometimes merges into the other. We know that in the diagnosis of diabetes mellitus we must keep in mind the symptomatic condition known as glycosuria, which is a more or less temporary phenomenon, occurring under the most varied conditions.

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*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. H. W. Stelwagon, J. A. Fordyce and H. G. Anthony.

There is always sugar in the blood. Under many conditions, as an excess of glucose in the food, or functional disease of the liver, the blood becomes overloaded, sugar is excreted by the kidneys, and we have transient glycosuria, a very different condition from true diabetes mellitus, and which need not necessarily interfere with after good health or with life insurance.

There is a similar distinction between diabetes insipidus and polyuria. The ingestion of large amounts of beer or water; diseases of the medulla or cerebellum, chronic hydrocephalus and hysteria may all increase the flow of urine, but this increase is symptomatic and transitory, and is not the chronic, rare disease here considered.

Diabetes insipidus is a much milder disease than diabetes mellitus. The notable symptoms of diabetes mellitus, such as muscular weakness, rapid emaciation in the young, uncontrollable thirst, excessive hunger and loss of sexual power are not observed in the insipid form.

Nor is the non-saccharine diabetes followed by the notable complications which lead us to seek for sugar in the urine. Boils and carbuncles suggest diabetes mellitus, and the disease is frequently the background for pruritus and chronic eczema. Diabetic gangrene of the extremities is a common occurrence in the course of this disease. Balanitis in the male, eczema of the scrotum, troublesome and intractable pruritus pudendi of the female, due to the decomposition of saccharine urine, are among the cutaneous incidents of diabetes mellitus. On the contrary, the skin manifestations of diabetes insipidus are of minor importance, and yet may be the cause for which the patient seeks relief.

Such was the case with the second patient noted in this report. He came to me because of a general but mild pruritus. Questioned as to his urine, I found that he was drinking water inordinately at night and passing several quarts of water between retiring and rising. This was of specific gravity 1003 to 1005. He does not perspire enough to wilt his linen in hot weather, or when subjected to extreme muscular effort. The same is true of the third case who, from boyhood, has had an excessive thirst, has passed much urine, and has always an abnormally dry skin. And my first case, affected from his 50th to his 90th year, did not sensibly perspire and had more or less general pruritus.

The pneumonia and lung gangrene of saccharine diabetes; the nervous symptoms, such as coma, neuritis and symptoms of locomotor ataxia, have not been recorded in the complications of diabetes insipidus.

Indeed, when we compare the effects of the two diseases, the disparity of symptoms and complications is great, and all in favor of diabetes insipidus. Both present mysterious problems, the solution of which has not been discovered postmortem, though the histopathology and chemistry have been studied industriously and faithfully. It is not, at this time, possible to go into the theoretical discussion of the nature of diabetes of either form. Each is a pathologic entity, related in large part to affections of the nervous system. Both are very chronic diseases; one is very common and very fatal; the other is rare, and not infrequently overlooked both by the patient and the clinician.

In diabetes insipidus the dryness of the skin, the absence of sensible perspiration and the pruritus may lead the patient to the dermatologist; the thirst, the large quantity of urine passed, the inconvenience of water drinking and the frequent demands to empty the bladder may lead the patient to consult his family physician. He may pass from 20 to 40 pints of urine daily of a specific gravity of 1000 to 1005, but containing the normal amount and variety of soluble ingredients.

The patient may be well nourished and healthy and with ordinary appetite, or he may even have an enormous appetite, as is the frequent condition in diabetes mellitus. Such was the case of one of Trousseau's patients who inspired such terror in the keeper of one of those Parisian eating houses, where as much bread was allowed without extra charge as each patron wanted, that he gave this victim of diabetes insipidus money to prevent him coming back to dine. The tolerance for alcohol has in some cases been as marked as in cases of diabetes mellitus.

When a patient comes to us complaining of dry mouth and scanty saliva, with a harsh and irritable skin, with a generalized pruritus intensified at night, and also complains of night thirst, we may find on examination of his urine that it is of low specific gravity and great quantity, and that he is not suffering from diabetes mellitus, but from the much rarer and more innocent, but not less chronic disease, diabetes insipidus.

The future course of such a patient will depend largely on the nature of his primary trouble. If organic disease is the cause, whether of the nervous system or of the circulatory or abdominal organs, sooner or later we may expect to find the patient's health giving way, with increasing emaciation and loss of strength, but if the case is of the idiopathic type, we may assure him that it is comparatively inconsequential, for this affection has been known to continue half a century, and death to result from intercurrent disease or even from senile exhaustion.

Such was the history of one of my three cases—an old physician whom I had under observation for fifteen years, and who died after his 90th birthday. He often assured me that the same conditions had maintained in his case since he left the practice of medicine over forty years before—ingestion of abnormal quantities of water, the passage of abundant urine of low specific gravity, a dry, harsh skin and mouth, with more or less of pruritus and discomfort, and all these symptoms increased at night as compared with the day. And yet he worked a half day in his garden for over forty years, and remained a teacher in the employ of the state until his 87th year, passing into a most beautiful and painless senescence, and to the last with so even a balance of functions that when he passed away I could find no organ or system to accuse of failure more than another; and for once, the much-abused phrase, "senile exhaustion," which we give as a death return in cases of diagnostic disability, was written in the confidence that no better term could be devised or employed.

My second case is that of a man of 50 past, who for two years has suffered from diabetes insipidus with great thirst intensified at night; and at night the pruritus from which he suffers is also intensified. Otherwise he is apparently well. He gives no history of syphilis; his life has been exemplary; his labor severe and exacting. But following the success of Dr. Tyson with iodid of potassium in his seven cases, I shall offer him the chances of this treatment.

Our authors assure us that the treatment by drugs is on the whole, unsatisfactory. Opium, codein and ergot have been recommended; also the preparations of valerian, the latter, on the whole, having the preference of the therapists. We are advised not to forbid the patient to assuage his imperative thirst, even if that were possible. The skin should be well cared for by baths and

frictions, and the general health and vigor promoted by nourishing food, outdoor life and the avoidance of worry.

The third case of diabetes insipidus under my observation I have known as a patient for some fifteen years. As a boy of 12 he was afflicted with alopecia areata of the scalp, including also the eyelashes and eyebrows. These attacks were recurrent for some eight or ten years, but have ceased, and his hair is now normal. He has been a great drinker of water, and has passed more water than the normal, as he says "ever since he can remember." He now fills an ordinary chamber vessel every night, passing more proportionally in the night than during the working hours. His skin is dry; he does not perspire under the hottest Cuban sun; his mouth and throat are dry. This is in part due to the excessive use of Cuban cigarettes and cigars. He has a pruritus intensified at night, as is the usual case with this affection from whatever cause produced. His urine is never above 1005; the solid ingredients are normal for his weight, diet and exercise. His habits are sedentary; his business is clerical. I find no other disease or aberrancy. Like the other two cases, the heart is rapid—always about 90 beats to the minute. His appetite is somewhat excessive; his digestion fairly good, except when exhausted by unusual office labor and the depression of a southern climate.

In no one of these cases has there been apprehension, despondency, abnormal introspection or impairment of sexual capacity. They collectively illustrate the benignancy of a pathologic condition rare in occurrence, of unknown nature, and without discoverable organic lesions, or constant morbid anatomy, but undoubtedly connected with changes in the central nerve axis, the sympathetic nervous ganglion, or of the afferent or efferent nerves—most probably a vasomotor ataxia.

The condition may be far more frequent than the scanty statistics indicate, as the symptoms presented, namely, thirst, polyuria and dryness of the skin with pruritus, may not be sufficient to lead the sufferers to seek medical advice; or when they do seek such advice for the resulting manifestations the consultant may, if negligent in examining the urine as an essential step in his routine of diagnosis, overlook the cause and so fail to find the background of diabetes insipidus.

The reports of these three cases may be of value in relating some case of pruritus to the overexcreting function of the kidneys, even if the consultant is unable to determine the cause of this extreme exercise of their normal function.

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THE PHYSIOLOGY OF THE MIDDLE EAR.*

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CHICAGO.

The scope of this paper embraces the following parts: 1, the drum cavity; 2, the attic; 3, the aditus ad antrum; 4, the mastoid antrum; 5, the mastoid cells; 6, the eustachian tube.

The function of the eustachian tube is, first, to ventilate the middle ear, and secondly, to drain the secretions from the middle ear into the nasopharynx. So far as the function is concerned, the tube seems to be the best known of all the parts of the middle ear, yet there is controversy whether the tube drains secretions, since in postmortems it is always found empty. Only two years ago Dr. Lindt in Bern inserted an instrument similar to a cystoscope into the nose of a patient, and with it he could see and demonstrate and photograph the secretions emanating from the orifice of the tube, either as a thin thread of mucus or as masses of large bubbles.

The mastoid cells, the mastoid antrum and the aditus ad antrum belong anatomically and functionally together, and may, therefore, be treated as one. They are totally absent in the new-born. They develop during childhood, and have not even reached their full extent at puberty. This may be taken as evidence that these are not essential parts for the function of the ear. The opposite is known to be the fact with the ossicles and the labyrinth. They have reached their full form and size at birth, and do not change. The total volume of the antrum and cells is small during childhood compared with the adult, and it is reasonable to suppose that there may be a relation of cause and effect between this and the enormous frequency of inflammations of the middle ear during childhood. The aditus ad antrum and the antrum, together with the cells, act as a reserve air tank for the middle ear. The air is normally renewed only at intervals by swallowing or blowing the nose, etc., which explains the necessity of the reserve tank. Clinical observations support this view. In several patients, with the highest degree of retraction of the drumhead, air could be inflated into the middle ear by very low pressure, and the membrane brought to its normal position. After a very short time, a few minutes only, the retraction was as bad as ever. In all these cases I found on palpation an extremely small mastoid process, which contained few and small cells, as I had a chance to see in one case which had to be operated on. The tube was patulous, and still the air did not pass because the volume of the cells was too small to create sufficient negative pressure, and the retracted drumhead filled the drum cavity.

The function of these parts of the middle ear being explained, the attic and the drum cavity will occupy more time. They contain the drumhead and the ossicles, mallet, incus and stirrup with their muscles, the tensor tympani and the stapedius. It might be very interesting to study the mechanism and function of each of these parts, but such is not the purpose of this paper. We consider them as a whole, and call them the middle-ear apparatus. The theories of Helmholtz on its function are well known and widely accepted. Still there are serious objections, of which we mention only two: We find many ears where suppurations of the middle ear have left large holes in the drumhead. Nevertheless, the hearing for whisper is often very little impaired. A lady from Colorado whom I examined had no trace of the membranes left in either ear, and the handle of the mallet hung free into the cavum tympani. She heard a whisper at a distance of 12 mm., and would have heard it farther had we been able to procure a larger room. More than that, otologists sometimes remove the ossicles, the mallet and incus and even the stirrup in order to improve the hearing.

Another very well-put objection is this: If the ossicles serve to conduct the sound, why have they joints? Why are they not ankylosed as in whales or a single columella as in crocodiles and birds? A straight rod will certainly conduct anything—heat, electricity or sound—much better than a chain. This and many other considerations have led some authors to look for other explanations of the function of the middle ear.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

G. Zimmermann[1] of Dresden states: "The chain of ossicles does not serve to conduct the sound to the labyrinth and thereby bring it to perception. It does not take part in the ordinary conduction of sound, but only acts when it becomes necessary to reduce and to check vibrations of the resounding fibers which would be too strong and too persistent. It is to a certain extent a safety valve, such as even the most ordinary steam boiler needs. The heating is done through the walls of the boiler, and the steam can only escape at one certain spot. In the same manner the sound enters the inner ear directly through the surrounding bone, and all the resounding waves of the fluid of the labyrinth recede at the round window. To continue our comparison, the pressure in the labyrinth is regulated by the chain of ossicles, just as the pressure in the boiler is regulated by the safety valve, allowing the resounding fibers to vibrate only to such an extent as is most favorable for perception." This theory is certainly very clear and simple. It was hailed and accepted by a great number of authors—physiologists as well as otologists. In this country, too, it has many friends. The objections to it have been numerous, but Zimmermann has refuted most of them very cleverly.

The question, therefore, gentlemen, rests with you, the physiologists and otologists, to decide which theory shall stand or fall; whether in the future we shall consider the whole middle ear, with its complicated anatomy, as an important adjuvant in hearing, or as a decidedly secondary regulating mechanism, without which we may very well get along, or which might at least have been devised more simply in order to act more accurately. It has become my conviction from literature, as well as from personal experience, that a great number of otologists of this country belong to the latter category, inasmuch as the rule has been made, and is widely followed, to remove the mallet and incus and if possible the stirrup in radical operation in all cases of chronic suppuration of the middle ear that do not readily yield to treatment. The operators admit that a considerable loss of hearing usually follows, but that is of minor or at least incidental importance, since they say "we do not know anything about the function of the bones in the ear." Our decision in this question is, therefore, of great importance. To draw conclusions, we first ask: What have the opponents to say? Second: How does Zimmermann answer? Third: What do experiments teach.

As to No. 1, Eschweiler says, when a sudden loud noise strikes the ear, the stirrup is pressed ad maximum into the oval window, the membrane of the round window is stretched ad maximum of its elasticity and bulges into the middle ear. This membrane is not soft and tender, but rather tense and tough, and if it is stretched ad maximum, it will not be able to respond to fine vibrations of the fluid of the labyrinth caused by the resounding vibrations of the fibers of the membrana basilaris. In other words, according to Zimmermann's theories, it is hard to explain that we can hear loud and soft sounds at the same time. To this Zimmermann answers that we have to distinguish between the elasticity and the natural solidity ("natuerliche Festigkeit") of a membrane. Although the membrane of the round window may be stretched ad maximum, the fine vibrations of the labyrinthic fluid caused by the resounding fibers are received by the "natuerliche Festigkeit." He must admit that it is possible to hear at the same time very loud and soft tones, but in order to fit this in his theory he has to take refuge in the explanation that a membrane which is stretched ad maximum is still able to react to impulses, the force of which is extremely small compared with the energy of the stretching mechanism. Yet Zimmermann admits that a free and easy mobility of the membrane of the round window is a condition *sine qua non* for accurate functionating of the labyrinth. A comparison will make this point clearer. To stop the resounding of the cords of a piano, dampers of only a few grams in weight are sufficient. The action of the tensor tympani muscle forces the stirrup into the oval window and will act in the same way as the dampers in the piano. But in the piano each cord has its own damper, the weight of which varies according to the length of the cord, and is only a small fraction of the weight of the cord itself. In the ear the same force acts as a damper at the same time on all cords, and this force is a very great one compared with the cords, because the tensor tympani muscle is more than a half cm. in diameter. The theory that the chain of ossicles acts as a regulating mechanism for the pressure in the labyrinth leads us to any number of physical impossibilities.

The whole controversy so far is old, and I would not have called your attention to it if there had not been developments which throw light on the past. Bezold last December published a paper on hearing-tests with tuning-forks in one-sided deafness, and the conclusions which may be drawn therefrom on the bone conduction and on the function of the sound-conducting apparatus. He reasons thus: "If hearing is done without the middle-ear apparatus directly through the bone, and if, as a matter of fact, the bone conducts sound much better than air, we should expect improvement of hearing if we conduct the sound to the labyrinth through the bone from the median side." Bezold experimented with four patients who had each one normal ear, while the other middle ear as well as labyrinth, was completely destroyed, so that a funnel-shaped cavity reached from the concha into the head to nearly the middle line, thus offering very favorable conditions for receiving and conducting the sound through the bones of the base of the skull directly to the labyrinth of the good ear. To produce sound, Bezold used low tuning-forks which were free from overtones, because high sounds and high overtones are carried much farther by the air, so that the usual way of hearing them through the air can not be excluded. He found that none of the lower parts of the sound scale could be heard by any of the four patients from the side of the destroyed ear, while from the other side, at a distance several times the thickness of the head, some forks could still be heard. To this Zimmermann answers that Bezold experimented with the weakest and not with the strongest sound waves. He ought to have used a kettledrum or organ whistle or only the piano. Furthermore, he states that it is wrong that tones of high pitch carry farther than those of very low pitch. Professor Bezold and Professor Edelmann worked together for ten years to construct instruments with which to produce sounds without overtones. It was one of their uniform experiences that low sounds without overtones do not carry far. Anyone can verify this by holding one of Edelmann's low forks close to the ear. The sound is very strong, so that people who hear it for the first time often become frightened, while at a

1. G. Zimmerman, Dresden: The Mechanism of Hearing and Its Anomalies, p. 75.

distance of only a few inches to a foot nothing can be heard. Zimmermann writes that he does not see any theoretical reason for this, and therefore simply denies this fact. Had he ever made the simple experiment himself, he would know better. He ought to know that organ whistles, kettledrums and other musical instruments with low pitch have overtones which make them carry far. To compare the results obtained with them to the results obtained with Edelmann's forks, is the same as if you compare chemical experiments with impure chemicals to results obtained with chemically pure materials, or base important decisions on bacteriologic examinations made with unsterilized culture media in dirty glasses. Worse than that, Zimmermann admits himself that he has not experimented at all, and to results that have been established by most careful experimenting through decades, he answers, "they can not theoretically be justified." Bezold's experiments must be upheld. The first point of Zimmermann's theories, that all sounds are conducted to the labyrinth directly through the bone, is, for the low sounds, not true. The second point, that the middle-ear apparatus is merely a pressure-regulating mechanism, leads us to the physical impossibility that a membrane which is stretched at its maximum should still freely react to finest and weakest impulses. Such are the foundations on which methods of operating have been built, which have partly or even entirely deprived many patients of their hearing.

So much for the negative part of my paper. A number of pathologic conditions give positive information about the function of the middle-ear apparatus. The lower two to three octaves of the sound scale can not be heard in all conditions where the free mobility of the ossicles is interfered with. The most typical example of this is the bony fixation of the stirrup in the oval window. In many cases of this kind the nervous apparatus of the labyrinth also suffered from the disease, as microscopic examination after death revealed. Still there is a small number of these patients who can not hear the low tuning-forks through the air while they can hear, not only feel them when the handle of the fork rests on the vertex. Furthermore, in occlusion of the eustachian tube the retracted drumhead is the cause of immobility of the ossicles, and here, too, the low tones can not be heard. Another experiment is this: You can not hear the mighty roar of the waves, but only a noise as though little pieces of ice were rubbing against each other, when you promenade on the surf while having a cold which closes the eustachian tubes, or if you are able to draw the air out of the middle ear with negative Valsalva's test. The lower sounds are lost to the ear when the chain of ossicles can not transmit them. It is more than only "theoretically justified"; it is experimentally proved that the middle-ear apparatus alone transmits the low sounds from the air to the labyrinth. This is certainly its main function, but whether it is the only one is a question yet to be answered, because in all changes of its normal condition we find diminution of the normal hearing. Even the lady before mentioned, whose drumheads were destroyed, had good but not normal hearing. It is no contradiction to say that a great many high sounds may pass directly through the bone to the labyrinth, but for the low sounds this is certainly not true, as experiments on patients with only one labyrinth prove.

Physiology has always been the playground for theories and speculations. The fact that the works of Zimmermann found so many supporters proves that we have not passed that stage and have to be careful. Functional tests in connection with pathologic examinations of the normal compared with the acquired and congenitally hard of hearing, the deaf or deaf mutes, have put us in a position to draw accurate conclusions from the changes of the function on the diagnosis in a given case. We will not allow that the result of careful work of decades be swept away by speculations.

DISCUSSION.

DR. WINFIELD S. HALL, Chicago—The theory, as set forth by Dr. Holinger in the last pages of his paper, provides for two physiologic processes in the year: First, a protective apparatus, and second, a transmission of sound waves. If I understood Dr. Holinger correctly the stapedius and tensor tympani muscles of the ear by their tonus serve as a sort of protective apparatus to maintain as near as possible an even tension of the parts and so facilitate the better transmission of sound; while a stronger contraction serves to protect the delicate structures of the tympanum and labyrinth from the concussion of loud noises. In the second place the easily movable and very delicately balanced ossicles of the tympanum serve to transmit sounds, particularly those of low pitch, i. e., those that have a longer period of vibration. I think that the main difficulty with Helmholtz's theory was that he set forth the lever action of these bones only; while we have to do also with a molecular vibration of the chain of bones.

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ANOTHER MEMBER OF THE DYSENTERY GROUP.*

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Until the more recent work of Martini and Lentz, the bacillus discovered by Shiga as the cause of Japanese dysentery, the bacillus isolated later by Flexner and Strong in the Philippines, Kruse in Germany and Vedder and myself in this country were thought to be culturally identical, except for the minor inconstant differences as shown in the ordinary media then employed, which differences might be expected of individuals of the same species. Martini and Lentz, employing a mannite medium, discovered that certain of these isolations would ferment and others fail to ferment with acid production on this alcohol. Still more recent studies by workers in this country have determined other cultural differences between various isolations in their action on certain special sugars.

These cultural distinctions between the bacilli are in conformity with variations in agglutination reaction: based on these important differences, we now speak of members or strains of the dysentery group. This knowledge of types or strains of the dysentery group has led me of late to carefully test the biochemical reactions of

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every dysentery-like organism found in cases of acute dysentery and infantile diarrhea, with the view of determining whether or not there are still other unrecognized members of the group.

In all probability the bacillus which I am about to describe is another member or subdivision of the dysentery group represented by the "Fermenters on Mannite."

In my paper I shall give a brief description of the case, method of isolation, morphology, cultural features and agglutination reaction of the bacillus.

The organism was isolated in large numbers from the contents and scrapings of the gut in a fatal case of dysentery occurring in an adult. The autopsy showed that the lower portion of the colon was the site of infection. A pseudomembrane was present, and the mucosa gave evidence of many small necrotic areas. The intestinal contents were semi-liquid, muco-fecal in character, with large quantities of blood-stained mucus.

METHOD OF ISOLATION.

Scrapings from the mucosa and the blood-streaked mucus from the gut contents were suspended separately in tubes of sterile saline solution. The tubes were well shaken and set aside to allow the washed mucous flakes and solid particles to settle, which left a perceptible bacterial cloud in the upper two-thirds of the tubes. A series of twenty-four agar-gelatin plates were inoculated, using one loop of the suspension for each plate. By seeding the plates in this manner I obtained a uniform number of colonies on each plate.

The plating material used was similar to the His plate medium for typhoid, except for the leaving out of the beef extract and the addition of 1 per cent. peptone. Preparing the medium without using beef extract makes a clear and transparent plate medium, on which the superficial dysentery colonies can be readily differentiated from the colonies by the naked eye. Apart from the dysentery colony being smaller, its dull pearl-gray color is in marked contrast to the glistening cream color of the colon. Peptone in the plate medium is essential as a nutrient, since one of the cultural peculiarities of the dysentery colony is its frequent late appearance on the plates.

The smaller "pearl gray" superficial colonies were selected from the plates and stab inoculations made into the semi-solid medium described by His. This medium is far superior to the old glucose agar, in that organisms of the colon and typhoid groups are quickly distinguished from the dysentery group. Organisms producing gas do so rapidly in the semi-solid medium when incubated at 37 C. A few hours serve to exclude the colon. By introducing a sterile platinum needle into the tube and stirring the stab growth, myriads of gas bubbles immediately appear if the growth is colon. The typhoid and other actively motile organisms, as pointed out by His, rapidly cloud the medium uniformly. The growth of the dysentery group of bacilli is confined to the track of the needle and rarely clouds the medium, though occasionally a fresh isolation of dysentery will produce a slight haze extending some distance around the stab growth. Such cultures, when examined in hanging-drop preparation, are sluggishly motile, a property which is soon lost after a second or third generation.

In the case I am here reporting, all colonies that failed to produce gas or uniform clouding in the semi-solid medium were further studied culturally and the agglutination reaction tested; of this I will speak later.

MORPHOLOGY.

The organism isolated from this fatal case of dysentery is a fairly short bacillus, with rounded ends, ranging from 1 to 3 microns in length, often coccoid in form and occurring singly and in pairs. The bacillus stains with the anilin dyes, but all the bacilli in a preparation do not stain with equal intensity. The organism is readily decolorized by Gram's method. It is non-motile under ordinary conditions. Spores have not been noted. Flagella may be demonstrated by the modified Van Ermengen method, as described by Vedder and myself.

In general, the morphology and staining reaction of the bacillus is that of *B. dysenteriæ* (Shiga). I have never been able to note constant differences in morphology and staining reaction of the various dysentery cultures. Any variation that might be noted for a given isolation is wholly unreliable from the standpoint of differentiation. Some investigators hold that the Flexner-Harris culture is less coccid than the Kruse, Shiga and New Haven cultures. Again, His and Russell state that their "Y" organism corresponds more closely to the Kruse culture than to the Flexner-Harris culture. In my opinion, one culture can not be distinguished from another in morphologic differences. There is a wide variation in morphology, governed by the age of the culture, kind and reaction of medium, and the temperature at which the organism is growing.

CULTURAL CHARACTERISTICS.

The bacillus grows well on the ordinary culture media and corresponds on these in every respect to *B. dysenteriæ* (Shiga), with one exception—the reaction on neutral litmus milk. Like the Shiga culture, the organism produces the initial acidity in litmus milk, as indicated by the lilac color. At forty-eight hours the milk is still acid, but it is evident that a gradual change back to the orginal color of the medium has set in. After three to four days the milk regains its original blue color, which color remains for four to six days, when a second acid change occurs in the medium much more marked than the initial acidity. This second acid change in the milk is permanent. The tube remains always distinctly red, and at no period is there any tendency toward coagulation. In my hands none of the known cultures of the dysentery group produces this peculiar reaction in neutral litmus milk.

A study of the bacillus in litmus serum water media to which 1 per cent. mannite, dextrose, dextrin, galactose, saccharose and inulin have been added, shows a complete correspondence with the so-called "Fermenter on Mannite," as represented by the Flexner-Harris and the Baltimore summer diarrhea cultures. All of these cultures split the mannite, dextrose, dextrin and galactose as indicated, by first a change to pink and later coagulation of the medium. The saccharose and inulin media remain unchanged. In litmus serum water medium, to which 1 per cent. of chemically pure lactose is added, the bacillus ferments with acid production. The medium first changes to a pink color, and later is converted into a solid coagulum.

The ability of the bacillus to split lactose, and the production of a second marked acid change in neutral litmus milk are cultural peculiarities not possessed by any of the heretofore described strains of *B. dysenteriæ*.

AGGLUTINATION REACTIONS.

The bacillus gave a positive agglutination reaction with the patient's blood in dilution 1/400. The Flexner-Harris culture was positive in dilution 1/200. Shiga's

culture did not react in any dilution. *B. typhosus* was positive in dilution 1/80. Paratyphoid cultures were uniformly negative.

The bacillus of typhoid reacting with the patient's blood led me to test my organism with the blood of patients suffering from typhoid fever, since this case was clinically dysentery, with no previous history of typhoid. Again the autopsy showed no evidence of typhoid lesions, and the plates were free from colonies of typhoid bacilli.

The blood of fifteen cases of typhoid fever were tested; in each case the typhoid bacillus reacted in dilutions not less than 1/80, and in a number as high as 1/2,000.

In every case my bacillus was agglutinated with the typhoid serum. In many of the cases clumping occurred in as high dilution as with the typhoid bacilli. For example, the blood of a typhoid patient in the third week of the disease gave a positive reaction for the typhoid, and my organism in dilution 1/2,000. Shiga's and Flexner's cultures were negative 1/25.

In but two of the fifteen bloods did the Flexner-Harris culture give a positive reaction, and then only in relatively low dilution.

The organism, when tested with the antidysenteric serum from a horse immunized against the Harris strain of *B. dysenteriæ*, reacted in fairly high dilution, but not so high as the immunizing bacillus.

Rabbits immunized against *B. typhosus* and my organism produce common agglutinins for both cultures. The blood of a rabbit immunized against the Flexner-Harris organism was positive to my bacillus, but negative to *B. typhosus*.

RESUME.

I have in this paper given a brief description of a bacillus in all probability another member of the *B. dysenteræ group*. The organism differs from all hitherto described strains of the dysentery group, in its action on lactose and litmus milk. These distinctions in cultural features are in conformity with the variations in agglutination reaction. The bacillus is identical in morphology and in its action on mannite, dextrose, dextrin and the more common culture media with the Flexner-Harris strain of *B. dysenteriæ*. The bacillus is agglutinated in high dilution with the blood of typhoid fever patients, also with the blood of rabbits immunized against typhoid. Likewise, *B. typhosus* is agglutinated with the blood of rabbits immunized to this organism. The production of common agglutinins shows a close relationship between this organism and the typhoid bacillus. Though this bacillus possesses properties in common with the typhoid bacillus, it has, however, more in common with the dysentery. Therefore, in my opinion, it is rightly considered another member of the dysentery group.

DISCUSSION.

DR. E. LIBMAN, New York City—It is rather interesting to note the tendency that exists to group together the organisms which are found in cases of dysentery, notwithstanding the fact that, for instance, this last interesting organism described by Dr. Duval is closer to the colon group than those previously described. One can not help thinking that it would be better to believe that dysentery may be due to a variety of organisms, although the disease is probably in a great number of cases and in certain epidemics due to one particular organism.

DR. HENRY A. CHRISTIAN, Boston—It seems to me that the studies that have been made in the last few years on the organisms occurring in the gastrointestinal tract are of especial interest because they have taught us the occurrence of so many forms of bacilli which grade gradually into each other; in other words there are transitions, so to speak, between organisms of the two extremes. If there is any relation in the origin of these various bacilli that come from the intestinal tract in disease, it is the finding and study of such intermediate forms that may possibly clear up, later on, the relation of these organisms to each other in their development. In other words, they might be regarded as a sort of missing link in these organisms. This organism, then, is of particuar interest because it shows such a striking similarity in certain characteristics on the one hand to the dysentery organism, and on the other hand to the typhoid organism.

DR. C. W. DUVAL—The bacillus was isolated from a case of acute dysentery occurring this spring at the Boston City Hospital, in a 17-year-old boy. I have also isolated the organism from a number of cases of infantile diarrhea. There is every reason to believe that workers have encountered, but failed to recognize, this new member of the dysentery group, because a complete study of the various isolations has not been carried out. It is only on the special media that this organism can be distinguished culturally from the fermenter on Mannit or Flexner's "Harris" strain.

THE VITAL ACTION OF THE DENTAL PULP.*

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I had the honor, several years ago, of reading a paper before this section on "The Embryology of the Dental Pulp." This paper gave a minute description of the various processes taking place during the development of the tooth, from its formative pulp. I propose in the present essay to consider the nature of the mature pulp and to call your attention to its vital action after the tooth is formed. I shall consider the pulp within the pulp chamber and its myriad fibrils, for these fibrils are as much a part of the pulp as any portion of it, and are the channels by which its vital functions are carried on. These canals are slightly undulating and radiate from the pulp chamber to the outer surface of the dentin. Each canal contains a fiber bathed in a fluid, and this fiber is an arm of the pulp. Branches from this fiber anastomose with others through the dentin matrix. They form a delicate network in the substance of the crown near the enamel.

In the region of the cementum they anastomose with the fibers of the granular layer of the root. When the tooth is fully formed, the principal function of the pulp is for the vitalization of the substance of the dentin by means of its fibrils, which permeate into every portion of the matrix of the dentin. Its function is not only to vitalize, but it may again assume its formative function whenever causes for repair demand this action.

One of the difficulties we find in our research work on the mature pulp is the fact that we can not look on its tissue in life. We can not see these vital processes while they are going on, but must make our deductions on freshly-extracted normal teeth and pulps that are as near the life period as possible. But it is always dead tissue that we have to examine. We draw our conclusions from what is shown to have taken place when the tissue was alive; we know that the living pulp, with its blood vessels and nerves, nourishes the dentin; that vital changes do take place, and that this pulp is the source of vital action. It is a living organ, subject to any physiologic or pathologic process, which may act on any

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living matter; therefore, we may expect to find its connection with the general economy similar to that of other tissues. It will respond to the action of returning health, and caries which have commenced have been arrested by this vital action. They appear as polished blotches on the teeth and are not uncommon. Professor Miller, in his work on "Micro-organisms of the Human Mouth," calls this condition a spontaneous healing of dental decay. The dentin, which had become softened, has become hard again, and the decaying process is stopped. This change also takes place in the temporary teeth. The healed dentin retains its discolored appearance, but becomes nearly as dense as normal dentin. These changes have been brought about by vital action, and this action came from the agency of the pulp.

The histologic structure of the normal pulp, at the time of the full formation of the tooth, as has already been described in a former paper, is as follows: At the periphery we have the pear-shaped cells, then the spindle-shaped conjugation layer of cells, then the spindle-shaped and irregularly-shaped cells with their anastomosing processes, and lastly, the connective tissue elements in the central portion of the pulp, which seem to be scant in protoplasm. These cells are not very numerous, and are in a jelly-like matrix. The blood vessels enter at the apex, the trunk vessels resting near the center of the pulp. Sometimes as many as three arteries are seen to enter the apical foramen. They then divide into innumerable branches and form an extensive network of capillaries near the layer of the pear-shaped cells next the formed dentin. There are numerous veins also found, but these are somewhat larger than the arteries. Black tells us that the blood vessels of the pulp are remarkable for the thinness of their walls, and that the smaller veins seem to be nothing more than endothelial cells which are placed edge on edge, or margin on margin. The arteries have a circular and longitudinal layer of muscular fibers, but these are very thinly distributed.

There is always an effort on the part of the pulp to protect the dentin from destruction, from whatever cause. A microscopic examination shows us how misleading it is to call this organ a nerve. Its matrix is a mass of connective tissue, in the substance of which we find nerve-fibers, medullated and non-medullated. These enter the pulp through the apical foramen in bundles of various sizes. As they pass into the pulp they break into branches and form a rich network, a delicate plexus of fine nerve filaments, next the outer pear-shaped cells. It is not certainly known how they communicate with the fibril. It has been suggested that the finer fibers may pass between the pear-shaped cells, winding themselves around the dentinal fibrils and thus pass into the dentinal canal. There is also a rich capillary network of blood vessels near these pear-shaped cells in the newly formed tooth, and when we inject these and examine them under the microscope there seems to be little room left for other tissues there. When the dentin is irritated by infection or its surface is uncovered by a break, there immediately follows a period of vital activity. If we examine sections of a tooth made when these changes are taking place, we shall see that the formative cells in that portion of the pulp nearest the point of repair are filling up with glistening globular bodies, and the tissue about it is showing an increased vascularity, as though an active formative action were taking place; and in the canals opening toward the area of irritation, within the dentin matrix we find minute glistening granules, which are being carried outwardly toward the point of lesion. These glistening particles have the appearance of being minute calco-spherites. In studying this condition, some years ago, I satisfied myself that these appearances were the result of the vital action of the pulp in its efforts to repair the tissue, and that the minute glistening particles within the canals were in many ways similar to the minute globular bodies found in the tissues while the dentin matrix was developing. They are being forced into and through the canals of the matrix to the point of irritation, and I have seen long lines of them in the canals, nearly filling them up. In favorable cases, the canals against the irritation do become filled and a formative process goes on within the pulp chamber, until a calcified barrier is formed there, corresponding to the part disturbed or destroyed. When this change takes place the consolidated dentin in this area becomes slightly darker in color than normal tooth structure, and might easily be mistaken for decay.

In carious pits and fissures of the bicuspids and molars the organisms of infection proceed inward through the dentinal canals toward the pulp. As it nears the pulp this protecting barrier is formed, and under normal conditions the infection is retarded, changes its course and moves in the next weaker direction toward the approximal surface, usually without exposing the pulp—if taken in time. We also find the protecting consolidation in teeth that are worn down, usually in the mouth of old people, and when this change has taken place these teeth are not liable to decay again, except under very unfavorable circumstances. This protecting process forms that tissue known as the zone of resistance; the hyaline appearance of this zone tissue under the microscope is caused by the lime globules consolidating the canals that are in the substance of the zone. These changes are due, in a large measure, to normal conditions, as regards the vitality of the individual. But in cases where the constitutional condition is below the normal, even where they seem favorable to decay, there is always an attempt made to retard the infection. Under certain conditions of environment and infection, penetrating decay is so rapid that the vital action of the pulp is overwhelmed, and the pulp becomes exposed, and is in a pathologic condition even before the breaking away of the cavity walls.

The pulp is the central and largest source of vitality to the tooth, and it acts through its myriads of fibrils. Sometimes the ends of the fibrils are seen to be running slightly into the enamel substance. In the root portion they anastamose with the fibrils of the granular layer near the cement, and a communication is seen, in many cases, to be continued through the cementum by means of the lacuna and their fibrils, and in a few cases I have traced them out to the pericementum. Pain of the dentin, following the touch of an instrument, or from any irritation, is expressed through the agency of these fibrils, and we become conscious of the sensation through them. When irritation is caused by wear, erosion, or a break exposing the dentin, a section under the microscope will show that secondary dentin has been formed within the pulp chamber, and this corresponds to the loss of substance of the dentin which has been affected. This secondary dentin is a tissue that has been called dentin of repair, and this is a manifestation of the vital action of the pulp. It is formed within the pulp chamber and is always an addition to the already formed dentin. It forms against the portion of the pulp cavity next to the fibrils which have been affected by the lesion. The enamel might wear or break indefinitely, and we shall find

no compensation of any kind occurring until it reaches the surface of the dentin, whereon the vital power of the pulp is aroused and an action of repair progresses in proportion to the extent of the injury. Some have thought these changes occur only in the teeth of old people, but such is not the case. They may occur at any age, and this process of repair has been found to have taken place in the tissues of a temporary tooth. These changes are all characteristic of the vital action of the pulp. The dentin is and was meant at all times to be a living tissue. As I have shown, it receives impressions of injuries and responds by processes of repair. Some of the ablest men in the profession have questioned the further value of the tooth pulp after the full formation of the tooth has taken place. They look on it as simply a formative organ and consider its mission closed with the formation of the tooth. It is, therefore, in their judgment quite as well to destroy it, take it out and fill its chamber. The microscopic appearance of dentin, after the pulp is removed, shows that a large amount of dead organic tissue is left within the canals that can not be taken out, and this dead tissue is a source of considerable danger to the health and vitality of the pericementum.

The subject of vitality, tissue repair, and compensation for injury on the part of the pulp, should suggest a lesson for us all. The whole phenomena of vital action shows that the pulp is, under proper conditions, always helpful in bringing about successful results, if properly attended to. The restoration to a healthy condition of an irritated and troublesome pulp, is among the highest acts of professional skill. It is unfortunte that so many pulps have to be destroyed. It is fortunate that so many teeth remain quiet and apparently healthy after pulp extirpation and treatment. With the death of the pulp we lose not only sensation in the dentin, but also all the changes which vitality give to an organ, such as nutrition and recuperation. These can never by any possible means be revived. The main mass of the dentin of the tooth is dead. Myrids of lifeless fibrils are in its canals. It is true that the cementum, which was not formed from the pulp tissue, does furnish a limited amount of vitality and nourishment to the root, which is covered by the pericementum; but the health of the pericementum is threatened by the dead tissue which is locked up in the canals within the dentin matrix. In vigorous health pulpless teeth have been successfully treated and remain serviceable for years. In cases of a lessened vitality, we may expect more or less pericementumal trouble, a darkening of the tooth, a recession of the gums, and an absorbing of the alveola processes. The tooth is beyond the influence of any systematic process, and there is no probability of a change for the better. Abscess and necrosis may supervene, and extraction is the last resort. I conclude by quoting an extract from a paper written in 1874 by Dr. J. E. Craven, who says:

> Here is an organ formed of a delicate tissue as is the eye, and because some agent of decay threatens its ivory walls, the ruthless hand of a blissful ignorance pours on its devoted head such destroying angels as carbolic acid, creosote, cobalt, and arsenous acid. Poor little pulp, you have been caught, and the destructive genius at the chair wills that you be deprived of your previous life. Why not lay aside those substances that blister and crisp the tissue, until its life is enfeebled or lost, and, instead, resort to milder agents whose influence tends to cool the fevered part and allay the pain, reduce the inflammation, and use the food that nature herself would suggest to replace the covering the pulp has lost by decay?

PULP DEGENERATION.*†

EUGENE S. TALBOT, M.S., D.D.S., M.D., LL.D.

CHICAGO.

There are two forms of pulp degeneration, physiologic and pathologic. The physiologic is along the line of evolution and under the general law of economy of growth or use and disuse of structures. Physiologic degeneration was discussed in a paper, "The Evolution of Pulp."[1] It was shown that structures nourishing the placoid scales were larger than the scales themselves. Later, in some sharks, toothed birds, elephants, etc., the circumscribed pulp is as large as the tooth; in the horse and cow it is smaller, while in the anthropoid apes and man the pulp grows smaller and smaller until, in adult life, the apical end is so small that only one or two small arteries and nerves enter the root of the tooth. I demonstrated the vasomotor system of the pulp with nerve endings in a paper on the "Vasomotor System of the Pulp."[2] still later in 'Constitutional Causes of Tooth Decay."[3] I also demonstrated nerve degeneration and inflammation resulting in abscess of the pulp by disease of the body in connection with the vasomotor system and nerve degeneracy.

A pulp with such a record as I have demonstrated could hardly avoid pathogenic degeneration. Scarcely a pulp is exempt from influences of this, due to diseases of the body, external violence or pathologic changes. In the very nature of events, physiologic degeneration must necessarily result in pathogenic degeneration under the law of economy of growth and the struggle for existence between organs, influenced by bodily defects. Before taking up the different degeneracies, the nature of the pulp must be briefly considered.

The number of nerves, arteries and veins entering the apical foramina depends on the age of the individual and the tooth itself. A larger number enters early in tooth development than later in life, when the foramina is exceedingly small. Age and exostosis naturally reduce the size of the opening. Only one or two arteries enter the pulp chamber from the main trunk. These divide and subdivide, forming many branches and loops.

Because of the small opening at the apical end of the root, collateral circulation is impossible: hence, with end nerves and arteries, the pulp is an excellent illustration of an end organ. This constitutes its susceptibility to disease. The pulp enclosed within bony walls is without an opportunity for expansion in arterial dilation and sclerosis; it has only one or two small trunk arteries and veins for supply and waste. The blood likewise increases disease susceptibility. The vasomotor system makes the pulp to respond to any disease to which the general system may be subjected. Diapedesis follows. Thermal changes from without also modify the circulation of the pulp. Sudduth, and later Miller, are of opinion that there are no lymphatics in the pulp. If they be not present, still the pulp has great predisposition to degeneration, since Wedl, Tomes, Smale and Colyer and many others, as well as myself, have found large spaces, without walls, whose lymphatic nature has not been deter-

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

† This paper is one of a series read before this Section for a number of years and was referred to in my paper on "The Constitutional Causes of Tooth Decay."

1. THE JOURNAL A. M. A., Aug. 2, 1902.
2. THE JOURNAL A. M. A., Dec. 19, 1903.
3. Dental Digest, December, 1903.

mined. That débris and waste products may be carried from the pulp through the veins seems probable.

One influence but little considered in relation to pulp degeneration or tooth structure in general, and one that exerts a marked consequence on tooth decay, is the factor of interstitial gingivitis, abrasion and erosion, which are degenerative conditions that take place at the fourth period of stress, at the senile stage or period of evolution at from forty to forty-five years of age. Not infrequently the senile stage occurs prematurely in neurotics and degenerates. At this period all excretory organs are weakening, faulty metobolism results, and the vasomotor system does not respond quickly. Marked disturbances take place in all the structures of the body, including the alveolar process as well as the pulp. Wedl in 1872 first called attention to the senile condition of tooth structures shown by their discoloration.

Morbid change in the pulp other than nerve end degeneration, inflammation resulting in abscess, as already discussed, may be summed up as arteriosclerosis, endarteritis obliterans, thrombosis and embolism, cloudy swelling, fatty degeneration, mucoid, colloid, hyaline, amyloid degeneration, pulp stones, neoplasm and fibroma.

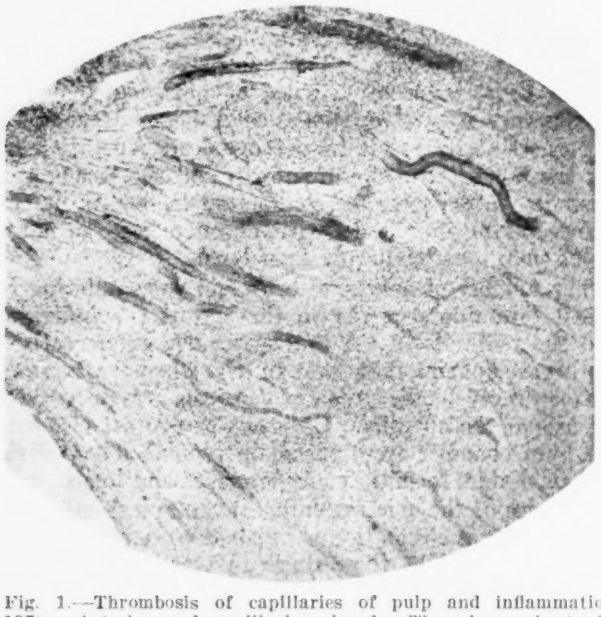


Fig. 1.—Thrombosis of capillaries of pulp and inflammation. (×137). Arteries and capillaries closed. Thrombus. Acute inflammation, showing there has been a hyperemic condition.

Some of these have been discussed by Wedl, Tomes, Smale and Colyer, Hopewell-Smith, Black, Boedecker, Arkovy, Andrews, Römer, Morgenstein, Caush, Latham and many others, and can be studied more at length in the original monograph.

Here it is not my intention to study each morbid condition, but to show that the pulp is susceptible to them (individually and collectively), resulting in tooth degeneration.

Among vascular changes and circulatory disturbances, thrombosis in the blood vessels of the pulp is not uncommon. From the present knowledge of pathology and the pathogenic condition of the pulp, it is evident how thrombosis must occasionally result. The pulp, an end organ without anastomosis and collateral circulation, the blood returning through a single vein, creates an anatomic predisposition for formation of a thrombus. The many degenerations and retrogressive changes which take place in the pulp make it susceptible to this morbid state. The spontaneous death of the pulp which sometimes follows disease can be thus accounted for. Formation of different calcic deposits causes the current to become slower and the leucocytes to be retarded in their progress from and to the apical end of the root canal. In time the blood plates separate from the blood current and are caught at the apical end of the pulp canal. Sudden blindness occurs under similar conditions. The vessels become injured or abnormal, due to calcic deposits and other retrogressive changes and stasis take place, eventually furnishing a basis for future thrombosis and inflammation (Fig. 1).

A thrombus may be located in any part of the arterial system, but more especially the heart. Simple or septic fragments may become dislodged and carried through the blood streams to or into the pulp of the tooth. Having entered this cavity, its return is almost impossible.

Embolism consists of various structures, such as fat drops, tissue fragments, tumor cells, air, etc. These follow the blood current. The size of the body regulates

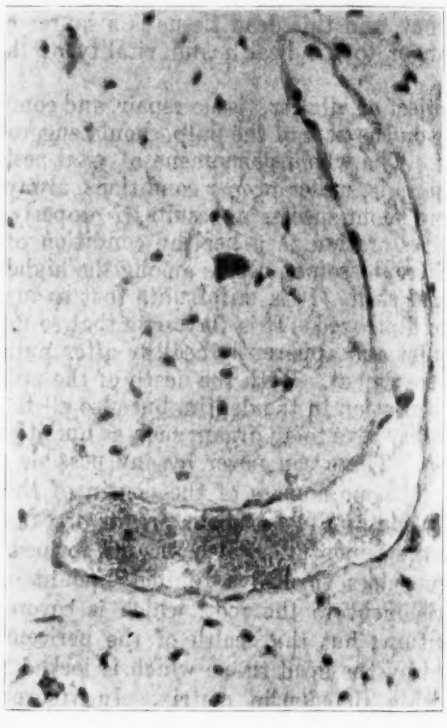


Fig. 2.—Dilated vessel. Diapedesis and embolus. (×280.)

the distance to which an embolus may travel. It stops in vessels whose lumen prevents its passage. More frequently it is arrested at the bifurcation of the artery. The pulp is especially adapted for this purpose, since it is an end organ, with numerous loops terminating in one or more veins for exit.

Emboli, according to Hektoen, act in two ways, mechanically, clogging the circulation, and specific, depending on the nature of the embolus, whether infected or sterile, whether composed of dead or living cells, capable of further proliferation. The circulation may be mechanically obstructed. If septic material has lodged in a blood vessel, inflammation may extend to the surrounding tissues (Fig. 2).

Endarteritis Obliterans and Arterio-sclerosis.—Inflammation of the arterial coats in the pulp is very common. This is due, in a degree, to pulp embryogeny, anatomy, environment and to its end-organ nature, as already stated. The diseases most commonly observed are endarteritis obliterans, arteriosclerosis. While it is

not uncommon for each coat of the artery to take on a special type of inflammation, yet all frequently become involved.

Endarteritis obliterans is an inflammation of the inner coat of the artery, usually of a chronic type. The inflammation may arise from an irritant in the blood cur-

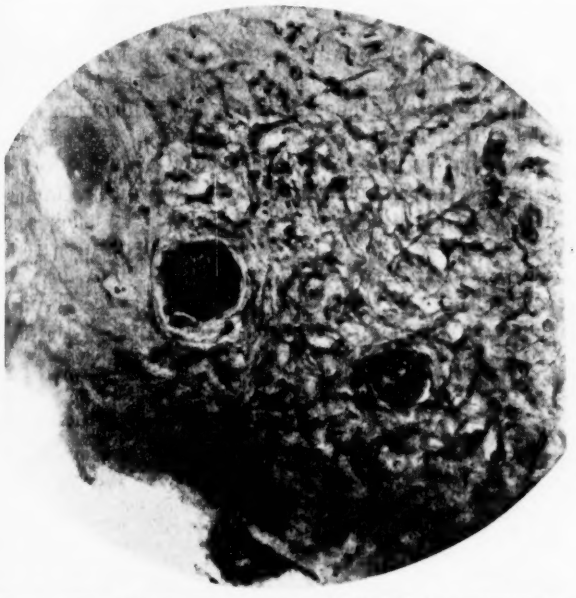


Fig. 3.—The wall in one artery is thickened (endarteritis) and almost occluded by inflammatory products. In the smaller artery the intima contains round-celled infiltration almost occluding it. The pulp tissues show the myxomatous character very well, branched spindle and round nucleated cells in many places. (×225.)

rent from the main current, through the vaso vasorum or through the lymphatics. The first is the most usual; in the alveolar process all three may occur. In the pulp, irritation in the blood stream is the most common method. Proliferation of the endothelium results.

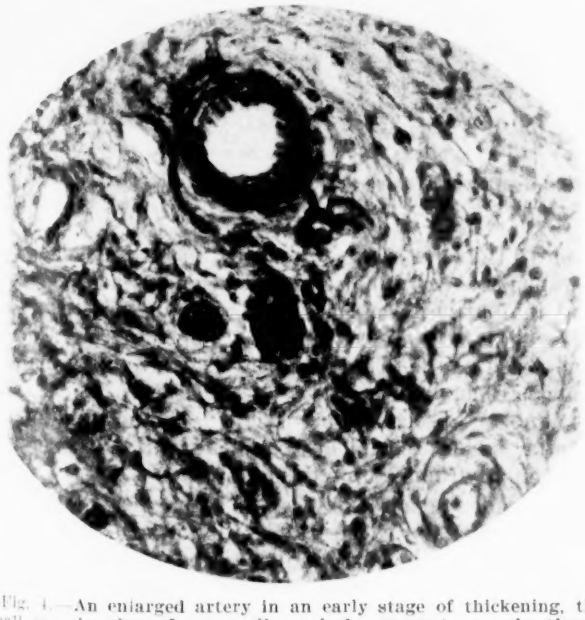


Fig. 4.—An enlarged artery in an early stage of thickening, the small vessels plugged up, well marked myxomatous pulp tissue. (×225.)

Bands of fibrous tissue develop. The blood vessels become obstructed and finally obliterated, impeding the circulation (Fig. 3).

The structure pulp, made up of loops of blood vessels and situated within bony walls, with only one or two arteries and veins for the passage of blood, renders it a unique end organ, and its arteries susceptible to arteriosclerosis. This, together with endarteritis obliterans, predispose the arteries to degeneration and necrosis. This is a thickening of the arterial walls, especially of the intima. It is secondary, according to Hektoen, to certain inflammatory or degenerative changes in the media. This is seldom observed early in life. It is commonly found after puberty, but more frequently at the senile stage, from forty years on. The causes producing arteriosclerosis in other parts of the body produce it in the pulp arteries.

The causes are usually auto-intoxication and drugs taken into the system, which likewise become irritants. Beside the distensive force and change in composition of the blood, local irritation on the arterial wall is an active cause. In diseases such as syphilis, gout, rheumatism, Bright's disease, alcoholism and chronic mercurial, lead, brass, arsenic and bromide poisoning, the

Fig. 5.—Pulp stones scattered throughout, here and there a form of round-celled infiltration, longitudinal nerve trunks, few degenerated vessels surrounded by hyaline degeneration in the middle of nerve trunk. Early sclerosis and cloudy swelling or granular degeneration. Adontoblasts *in situ*. (×21.)

walls become irritated, resulting in thickening of the arterial coats.

"The inebriate, whose brain and body after death exhibit a confused mass of wreckage, which the pathologist is often unable to trace back to the exact causes and conditions, has, according to Crothers, always sclerotic conditions of the large and small arteries, together with atrophic and hyperatrophic states of the heart, kidneys and liver, with fatty degeneration and calcification of the coats of the arteries. These organic changes are so frequently present in inebriates that they constitute a marked pathology which is traceable to the use of alcohol."

These irritants, acting through the vasomotor system and increasing the arterial pressure, finally cause paralysis and diminution of the caliber of the arteries and capillaries, producing stasis of blood (Fig. 4). This

morbid state of the arteries tends to produce any or all of the other degenerations previously referred to.

The inflammatory process of the intima was first charged to direct irritation of material floating in the blood. Rokitansky and Thoma are of opinion that it is secondary and dependent on the degenerative changes of the middle coat. This view I can not accept, since

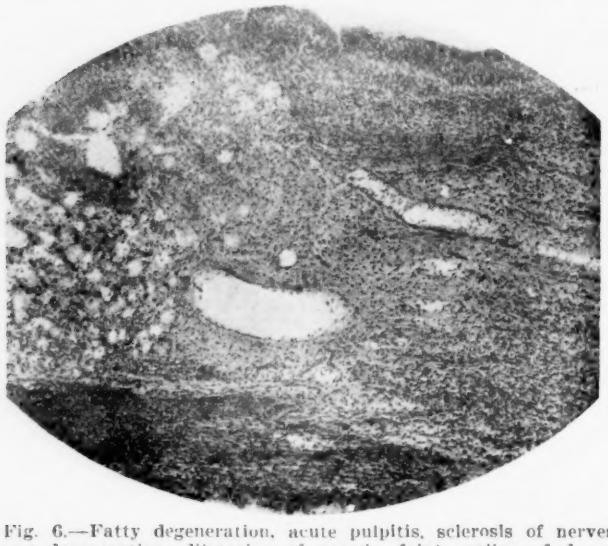


Fig. 6.—Fatty degeneration, acute pulpitis, sclerosis of nerves. Nerve degeneration, dilatation of vessels, faint outline of degenerated adontoblasts. (×137.)

auto-intoxic states produce irritation in the blood streams.

Many degenerations of the pulp are the result of arterio-sclerosis, endarteritis obliterans and nerve degeneration. These degenerations occur in connection

Fig. 7.—Shows pulp stones and their close relation to the vascular channels. Dilated vessels with amyloid deposit. (×62.)

with each other; in other words, sometimes, two, three and even more are to be found in the same pulp. The causes producing these degenerations are not understood.

Retrogressive Changes.—One direct result of arterio-sclerosis and endarteritis obliterans is cloudy swelling and fatty degeneration. These conditions are observed in connection with such diseases as typhoid fever, septicemia and other acute infections and toxic diseases. The tissues present a whitish or shiny appearance, without fibrous structures. Under the microscope the tissues present an opaque mass and do not take stain. The cells are quite large and swollen (Fig. 5).

"When a tissue, as for instance the heart muscle, receives a diminished quantity of blood on account of the narrowing of the lumen of the arteries due to thrombosis, embolism or disease accompanied by thickening of the intima, albuminous and fatty changing, remarks Hektoen, usually result. In the case of the different forms of anemias, degenerations with fat production are found in the liver, heart, kidneys and muscles. In such conditions there is not enough oxygen and other nutritive material to maintain the function of the cells. In actual starvation there is first absorption of all the fat in the body, accompanied by a marked diminution of the struc-

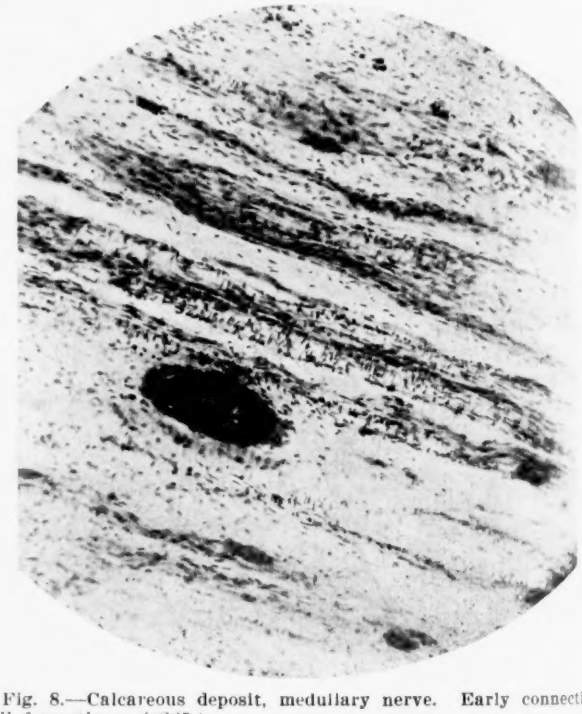


Fig. 8.—Calcareous deposit, medullary nerve. Early connective cell formation. (×225.)

ture. In the later stages, albumin and fatty degeneration take place. Albuminal and fatty changes are very common in febrile diseases. They occur in practically infectious diseases and in a large number of the intoxications, such as the drug poisons. They are also found in abnormal metabolism, due to direct action of poisons and the abnormal process of oxidation." Owing to the pulp's peculiar structure and environment, fatty degeneration is commonly found in its tissue (Fig. 6).

Amyloid degeneration is a peculiar degeneration of the connective tissue, causing an albuminous substance to be deposited in the surrounding tissue. The walls of the blood vessels also become involved. It presents a shiny appearance and differs from other tissues in that it turns a dark red color with iodin. The morbid state is found in syphilis, tuberculosis, chronic dysentery, etc. (Fig. 7). Almost every structure in the body may be involved.

Hyaline degeneration (Fig. 8) is, according to Stengle, closely allied with amyloid, mucoid and colloid degeneration, and all can pass into each other. It can occur in tis-

sues during infectious and septic processes, following traumatism, in autointoxications such as drug poison, hemorrhages in cicatrices, in senile blood vessels, arteriosclerosis, endarteritis obliterans and in the nervous system. It can also occur in connective tissue which has undergone a change by inflammation. This morbid state depends for its action on local or general nutritive disturbances. The pulp, therefore, is susceptible to it. The intima, as well as the entire walls of the small blood vessels in the pulp, easily becomes involved. Some investigators believe that fat connective tissue cells so arrange themselves as to undergo a change into myaline substances (Fig. 9). These ultimately lead to calcification. This raises the question of calcic deposits or so-called pulp stones. Pathologists know that tissues elsewhere in the body (which have necrosed or degenerated) are the localities where lime salts are deposited. Dying tissue which has undergone more or less change possesses, according to Ziegler, a kind of attraction for the lime salts in solution in the body. The tissues, to which

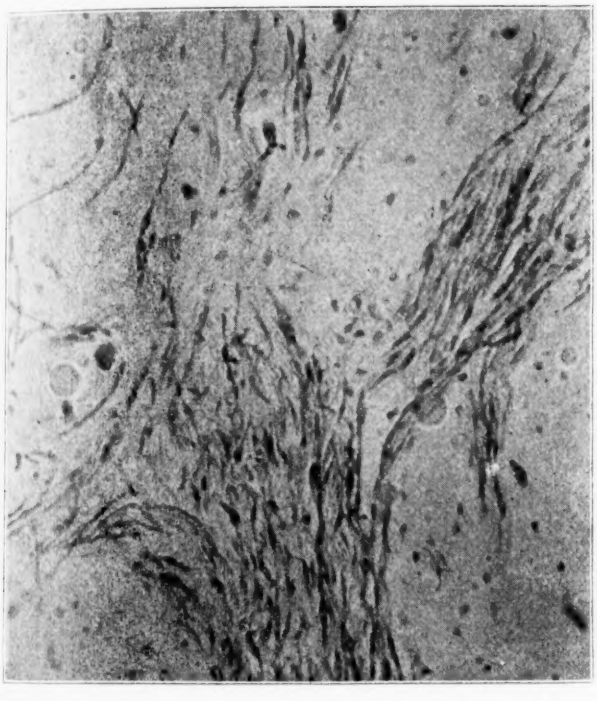


Fig. 9.—This shows medullary nerve fibers and internodes, axis cylinders, myolin degeneration. (×280.)

attention has been called, are especially susceptible to calcic changes; hyaline and fatty degeneration, tissues involved in disease or drug poisoning, already mentioned here and elsewhere. Regions affected by slight degeneration and in structures like the pulp, a constricted end organ, are predisposed to deposits of lime salts. Calcic deposits have different shapes and location in the pulp tissue. Circumscribed structures appear solid under the miscroscope, to the naked eye or to the touch, are not pulp stones or calcic deposits, but in a large percentage of cases belong to other retrogressive changes. These deposits (Fig. 10) are, no doubt, due to degeneration of pulp tissue, especially in structures undergoing hyaline or fatty degeneration. Large masses of deposits in the form of spherules often occur. Bone formations are sometimes observed. These deposits, both in pulp stones and spherules, take on a dirty, bluish-violet color, with hematoxylin. These Dr. Latham and I have observed many times. Crystals may sometimes occur.

"This applies, however, as Ziegler remarks, only to deposits of lime carbonates and phosphates and not to those of lime oxalate." These deposits may take place at

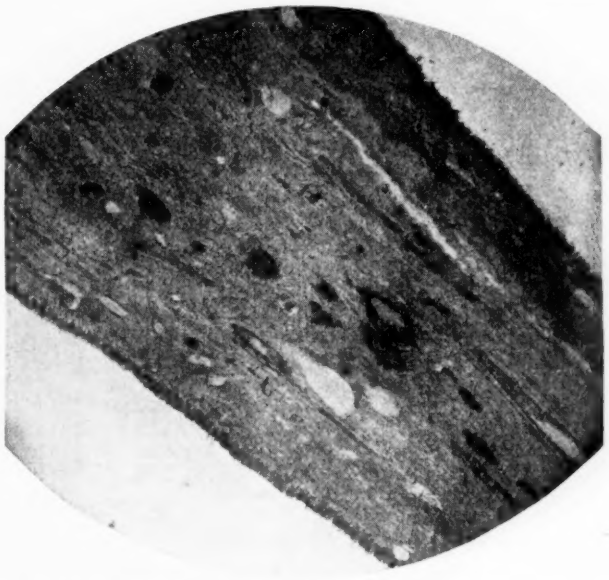


Fig. 10.—Shows medullary nerve fibers slightly thickened. The connective tissue is degenerating and hyaline adontoblasts show well on both surfaces. (×156.)

any time, but are most likely at the senile or fourth period of stress.

I shall not consider neoplasm at length in this paper, since Dr. Latham has this subject under discussion, but

Fig. 11.—Shows interstitial fibrosis with acute inflammatory cells. Odontoblasts have been destroyed. (×22.)

will only refer to fibroid degeneration in closing. Fibroid growth of the pulp may be both rapid or slow. Inflammatory reaction in fibrous pulps is rare, although when followed by infection or exposure, it may take place.

Various degeneracies like those already mentioned are liable to occur, especially those in which connective tissue in general is predisposed. The fibers are observed in bundles, closely packed together, with many connective tissue corpuscles shown at intervals. Fibroid degeneration is easily distinguished from the other degeneracies of the pulp (Fig 11).

In these cases, the blood vessels and nerve tissue are relatively few. The blood vessels remaining usually have thickened walls, especially in the external and middle coats. This, of course, narrows the lumen. Not infrequently the blood vessels are entirely obliterated. These fibromas, very common in exposed pulps, are not now under consideration. In nearly if not all of these degenerations the blood vessels are first involved, later nerve tissue.

All these degenerations, including the pathologic processes of evolution, are the direct constitutional causes of tooth decay, erosion and abrasion brought about by diminution of tooth vitality.

NOTE.—The discussion on the papers of Drs. Andrews, Talbot and Latham will follow the paper of Dr. Latham, which will appear August 20.

TUBERCULOSIS IN THE JEWISH DISTRICT OF CHICAGO.

THEODORE B. SACHS, M.D.

Instructor Internal Medicine College of Physicians and Surgeons; Examining Physician Maternal Jewish Hospital for Consumptives; Attending Physician Cook County Hospital.

CHICAGO.

The Jewish population of Chicago can be estimated at 75,000. This element of population is not as homogeneous as any other of the numerous nationalities found in this city; the ideas, customs and mode of life of Jews differ according to their place of nativity or length of residence in this country. The so-called immunity of the Jewish race from certain diseases varies in degree according to the economic and hygienic conditions in which they live; tuberculosis, for instance, may be comparatively rare among the well-to-do, but is very common among the poor. The same can be said about all kinds of infectious diseases, the spread of which is favored by poverty, overcrowding and its attendant unfavorable conditions of life. Conditions in which the different elements of the Jewish population live influence the degree of prevalence of certain diseases to a much greater extent than any racial characteristics.

THE JEWISH DISTRICT OF CHICAGO; ITS AREA AND POPULATION.

The largest percentage of the Jewish poor of Chicago are found in a district bounded by Canal Street on the east, Blue Island Avenue west, Taylor Street north and Fourteenth Place south (Chart 1). This area measures 244.6 acres and corresponds to one-half of the Ninth and a fraction of the Nineteenth wards of this city.

Its population can be estimated at 31,000, of which 22,500 are Jews. The Russian Jew represents the predominant element; Jews from Austro-Hungary, German Poland, Roumania and other European countries are in the minority.

All trades are represented here to a certain extent. Tailor-trade and work in factories and stores furnish means of subsistence to the greatest number. Of men engaged in outdoor work the largest percentage are peddlers.

Constant emigration from this district of the Americanized and more prosperous Jewish element is compensated by a continuous influx of new immigrants; thus the general aspect of this part of the city remains about the same. The non-Jewish population is found chiefly at the outer belt of this district and consists of Bohemians, Italians, Irish and a small number of Lithuanians and Poles.

HYGIENIC CONDITIONS. MODE OF LIFE.

The air in this part of the city is constantly filled with dust and clouds of smoke from the vast number of factories, foundries and railroads of the adjacent river district. It is further polluted by emanations from piles of refuse accumulating in streets and alleys. A large portion of this area is but seldom swept or sprinkled. There is only one small playground and no parks in sight for a distance of three miles. Hunger for pure air is the cry of the neighborhood. A more comprehensive idea of the existing conditions was gained by a detailed study of a square block in the center of this district (Chart 2), in which a house-to-house investigation was made by myself and Miss Bertha Hazard, a resident of the Hull House. This block is bounded by Jefferson street on the east, Union Street west, Maxwell Street south, and O'Brien Street north. West Thirteenth Street, one of the narrowest streets in Chicago, runs through its center. The area measures eight acres and has a population of 2,007 Jews and 214 non-Jews, or about 278 people per acre. Sixty-six per cent. of buildings are two stories high.[1] Forty-five per cent. of population in this square block live in rear flats, rear buildings or basements. The position of buildings is such that very little or no light can enter through the windows on either side. The average family consists of parents and four children. Three or four-room flats are the general rule. Extreme poverty compels a large number of families to utilize only half of their rooms during the cold season. Windows are generally kept closed through the entire winter. The extremely unsanitary conditions in which these people work and live, their abject poverty and overcrowding would naturally lead to a high rate of mortality from all diseases, but the effect of these unfavorable conditions is greatly mitigated by certain features of Jewish life, among which I could mention their early marriages, chastity, rarity of syphilis and alcoholism, easy access to medical aid, tendency to consult a physician for the most trivial ailment, careful selection of meat, its thorough cooking, etc.

MORTALITY FROM TUBERCULOSIS.

From May 1, 1902, till Nov. 1, 1903, 51 Jews died from tuberculosis in the Jewish district of Chicago. This represents an annual death rate of 1.51 per 1,000 living, or 138.5 deaths from this disease in 1,000 mortality from all causes (see Table 1). The corresponding death rate from tuberculosis in the central block (Chart 2) was 2.81 per 1,000 living, or 228.5 deaths from this disease in a total mortality of 1,000. During the same period of time the annual mortality from tuberculosis among the non-Jewish population of the Jewish district was 5.02 per 1,000 living, or 179.3

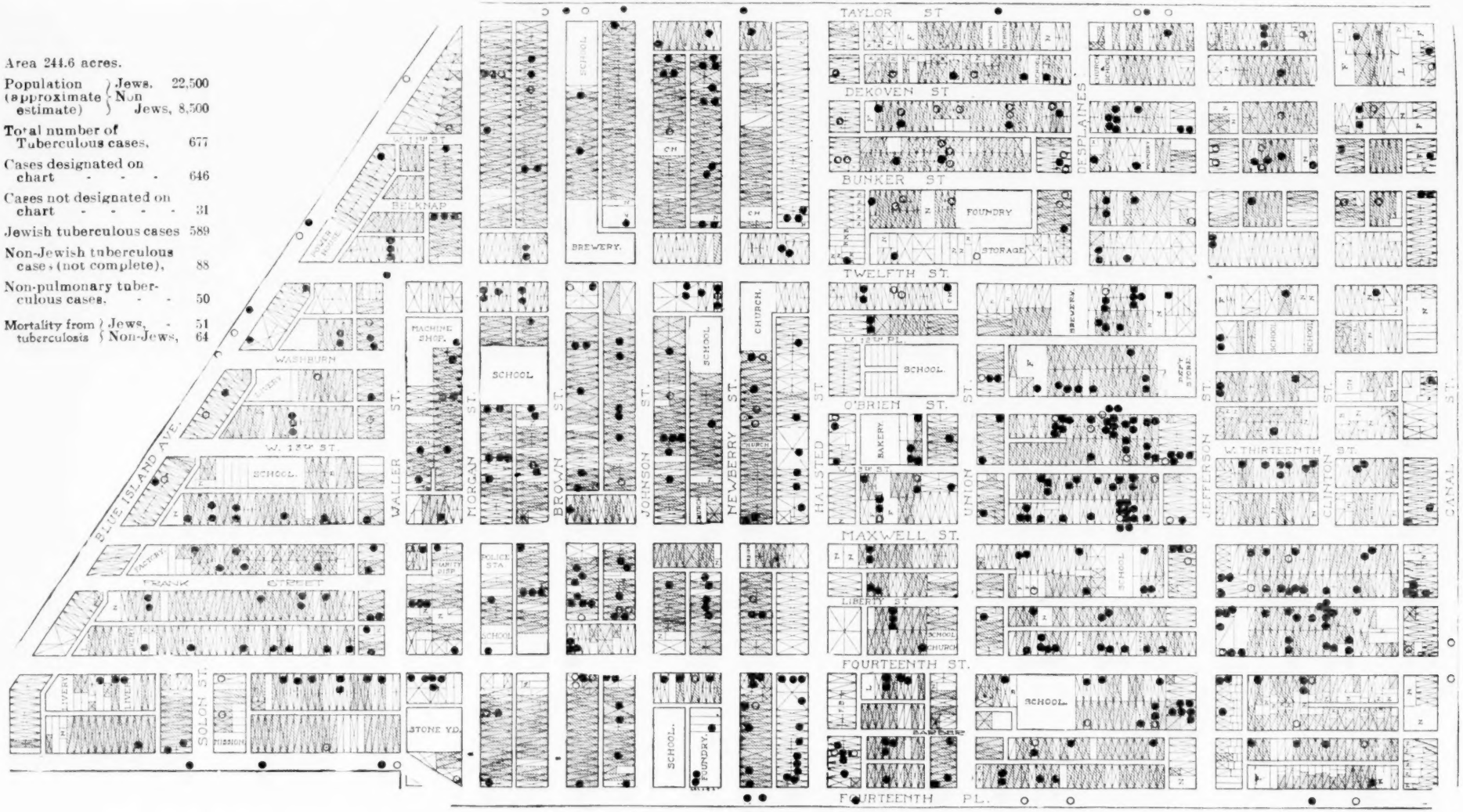
1. The per cent. of two-story dwellings in the entire Jewish district is 90. The greater density of population in the Jewish district of New York (488 per acre) is made possible by the existence of numerous large tenement buildings.

CHART I.—Showing distribution of cases of Tuberculosis in the Jewish district of Chicago. (May 1, 1902 to November 1, 1903.)

By DR. THEODORE B. SACHS.

Area 244.6 acres.

Population (approximate estimate)	Jews.	22,500
	Non Jews,	8,500
Total number of Tuberculous cases,		677
Cases designated on chart - - -		646
Cases not designated on chart - - - -		31
Jewish tuberculous cases		589
Non-Jewish tuberculous cases (not complete),		88
Non-pulmonary tuberculous cases. - -		50
Mortality from tuberculosis	Jews, -	51
	Non-Jews,	64



Cases of tuberculosis living—designated by solid dots.
" " —dead— " " empty circles.

One story building with a store or shop on the first floor.
Two " " " " " " " " " "
Three " " " " " " " " " "
Four " " " " " " " " " "

One story dwelling.
Two " "
Three " "
Four " "

F—Factory. N—Sheds, etc. B—Bakery. Ch—Church. L—Livery.

deaths from tuberculosis in a total mortality of 1,000.

The annual death rate from tuberculosis in the city of Chicago, according to the United States census for 1900, is 1.78 per 1,000 living, or 110.2 deaths from tuberculosis in a total mortality of 1,000.

These figures would naturally lead to the conclusion that mortality from tuberculosis among Jews is comparatively low and that Jews enjoy a certain immunity from this disease. Statements of this nature are found in nearly every text-book and apparently conform with the experience of the most careful observers in the profession of this country and Europe.

No deductions on this subject could be drawn from the federal census, as the population is classified only

above the average, judging from their occupations and the fact that out of 10,618 families, 6,622 employed from one to three servants, or more.

While this bulletin contains an enormous amount of material collected by experienced statisticians and its value is enhanced by commentaries from one of the foremost medical men in this country, the conclusions concerning rarity of tuberculosis among Jews can not be accepted for the following reasons: 1, the defective method of inquiry; 2, the high economic status of the families investigated, and, 3, the prevailing tendency to conceal tuberculosis as a cause of death.

An extensive study of tuberculosis among the poor and middle-class Jews of New York was recently made

CHART II.—A detailed study of a single block in the centre of the Jewish district of Chicago.
By DR. THEODORE B. SACHS and MISS BERTHA HAZARD, resident of Hull House.

Area, 8 acres—Population 2,221.

(A)—Adults	Jews,	961	Number of tuberculous cases	Jews,	53
	Non-Jews,	125		Non-Jews,	1
(C)—Children under 18	Jews,	1053	Deaths from tuberculosis,	Jews,	8
	Non-Jews,	82		Non-Jews,	3
1.—Living in rear flats and rear buildings	Adults,	479	● Case of tuberculosis—living		
	Children,	485	◒ " " " —dead		
2.—Living in basements,	Adults,	13	○ " " " —moved		
	Children,	22			

Cases of tuberculosis designated on this chart occured in a period of 18 months. (May 1, 1902 to November 1, 1903).

according to the place of nativity. A very large amount of statistical material is found in one of the most extensive investigations of this subject made by Dr. J. S. Billings, who, in Bulletin 19, Federal Census 1890, presents the results of a census of 60,630 Jews. The bulletin gives an astoundingly low annual rate of mortality from tuberculosis among Jews, namely, 0.22 per 1,000 living, or 70.59 deaths from this disease in a total mortality of 1,000. All the data in this census were obtained through special inquiries directed to heads of Jewish families living in widely different parts of this country. The decision as to the cause of death in each case was left to the judgment and fairness of heads of these families. Their economic status was far

by Dr. Maurice Fishberg.[2] He presents the results of a comparative study of the mortality statistics in the different wards of New York City.

Seventh, Tenth, Eleventh and Thirteenth wards, to a greater extent inhabited by Jews, showed in the years 1897-98 and '99 a smaller number of deaths from tuberculosis than any other section of the city. The annual mortality per 1,000 living for each of these wards was 2, 14, 1.72, 1.55 and 1.11 respectively, while the ratio for the Fourth Ward, inhabited by Irish and Italian laboring people, was 5.65, the highest in the city. Returns next to the highest came from the Twenty-third

2. The relative infrequency of tuberculosis among Jews. American Medicine, Nov. 2, 1901.

Ward, inhabited by Irish, Germans and Americans (4.95 per 1,000).

Any medical man who was brought into close contact with the Jewish poor of large cities will bear witness to the fact that only a certain proportion of Jewish tuberculous population die in the district in which they have contracted the disease. Their fear of consumption is much greater than among any other nationality and the belief in climate as the only cure for pulmonary disease is so firmly rooted that the first suggestion of anything abnormal with the lungs leads them to immediate preparation for a change to better climatic conditions. Men and women in very destitute circumstances will sell all their belongings and without second thought start on a journey to some of the distant western states. If for some reason they fail to secure financial assistance from some Jewish charity organization, their relatives and friends come to their rescue.

The idea of proper climate as the only cure for any

TABLE 1.

	Annual Death Rate from all Causes per 1000 Living.	Annual Death Rate from Consumption per 1000 Living	Death Rate from Consumption in 1000 Deaths
New York City (U. S. A. Census 1900)	20 4	2.43	118 8
Chicago (U. S. A. Census 1900)	16 2	1 78	110.2
New York City Jewish District; 7, 10, 11, 13 Wards	.....	1 63	99
Chicago Jewish District	10.5	1 51	138.5
Chicago Jewish District (Central Block)	11 58	2 81	228.5
Dr. J. S. Billings. Census of 60,630 Jews. Bul. 19, Census U. S. A., 1890	6.80	0.22	70.59

chronic cough is so widespread that plans for change of residence are frequently made without consulting a physician, and at times against his advice. A large number will remove to more healthful quarters of the same city. This constant emigration of tuberculous population from the poor districts of the city results in the erroneous conclusion that mortality from tuberculosis even among poor Jews is very low. From my experience as examining physician for the United Hebrew Charities and National Jewish Hospital for Consumptives I am certain that only a fraction of the Jewish tuberculous poor die in the districts in which they contracted the disease, and consequently any conclusions concerning prevalence of tuberculosis among Jews, based only on the rate of mortality, are necessarily erroneous to a considerable extent.

TABLE 2.—MORTALITY FROM TUBERCULOSIS AND PNEUMONIA IN THE JEWISH DISTRICT OF CHICAGO. (May 1, 1902, Nov. 1, 1903.) (Among Jews.)

AGES.	Under 5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	Over 60	Total
Tuberculosis	18	5	3	4	4	6	6	4	1	51
Pneumonia	82	1	..	..	1	3	4	2	3	46

The accompanying table of ages of mortality from tuberculosis in the Jewish district of Chicago well illustrates this point (Table 2). Of 51 deaths from this disease, 26 occurred before the age of 15, while in the period of life between 20 and 40 years, or the usual period of greatest mortality, only 10 deaths took place. The reason for a high mortality among children is explained by the frequent occurrence of meningeal tuberculosis. On the other hand, the number of persons that die in the district between 20 and 40 years of age would be very large if not for that constant emigration of tuberculous adults.

It is possible that certain conditions of Jewish life, particularly rarity of alcoholism and their dietary laws, may have some influence on prevalence of this dreadful disease, but the rate of mortality is much greater among them than was so far recorded.

For a period of eighteen months beginning May 1, 1902, an effort was made to record every case of tuberculosis that occurred in the Jewish district of Chicago. This was facilitated by the fact that a large proportion of Jewish tuberculous poor sooner or later apply for admission to the National Jewish Hospital for Consumptives. In addition to that the records of numerous city hospitals were consulted and every authentic case treated by myself and other medical men in this part of the city was added to the entire number. In a large proportion of cases in adults the diagnosis was confirmed by microscopic examination of the sputum and no diagnosis of tuberculosis was made unless based on positive physical findings. The results of this investigation lead to the inevitable conclusion that tuberculosis is very prevalent among the Jewish poor, that unsanitary conditions of home and factory life are chiefly responsible for its widespread occurrence and that tuberculosis mows down its victims regardless of race or nationality.

WIDESPREAD OCCURRENCE OF TUBERCULOSIS IN THE DISTRICT.

In a period of eighteen months 840 Jewish consumptive poor applied for treatment at various hospitals and dispensaries of this city, the majority of them receiving treatment at institutions conducted by United Hebrew Charities. More than one-third of the entire number sought admission to the National Jewish Hospital for Consumptives in Denver. The excellent results obtained by that institution and willingness of the Jewish Charities to extend help to their consumptive poor became widely known, so that gradually the number of applicants increased to such an extent as to create a very difficult problem to deal with.

Of the total number of 840 cases, 589 came from the Jewish district previously described and 129 from an area within a radius of a mile from it.

Classification of ages was as follows:

TABLE 3.

AGES.	Under 5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	Over 60	Unknown	Total
Number of Cases	54	76	62	72	207	176	107	41	19	26	840

Thus one-third of the entire number of cases occurred in children and 60 per cent. between the ages of 20 and 50, or the period of life of greatest usefulness to society.

As shown in Table 4, 80 cases were non-pulmonary; in 61 some other organ besides the lungs was prominently involved. Tubercular meningitis was found almost exclusively in the first three years of life. Seventy-five per cent. of cases of glandular tuberculosis were met in the first two decades of life. Difficulties inherent to differential diagnosis of intestinal diseases in children may explain the apparently small number of cases of intestinal tuberculosis found in the first few years of life.

In 41 cases of the entire number physical signs were not definite enough to make a positive diagnosis; these cases were classed as suspicious.

Of 840 cases, 760 or 90 per cent. were cases of pulmonary tuberculosis. Clinical demonstration of greater frequency of tuberculosis in other organs of the body

could be accomplished only by the use of more exact and accessible methods of diagnosis which we do not possess at the present time. The tuberculin test, not entirely free from harmful effect, was out of question in the

TABLE 4.—CLASSIFICATION OF THE 840 CASES OF TUBERCULOSIS ACCORDING TO ORGANS INVOLVED.

	Meninges.	Meninges and Lungs	Glands.	Glands and Lungs.	Joint.	Joint and Lungs.	Spine.	Spine and Lungs.	Intest. and Periton.	Bone.	Skin	Genito-Urin.	Intest. and Lungs	Larynx and Lungs.	Suspicious.	Pulmonary.	
Under 5	5	7	6	1	5	....	2	....	3	....	....	....	1	....	....	....	
5-10	1	....	2	5	2	....	4	....	....	3	1	....	....	....	....	....	
10-20	....	....	7	6	3	3	3	5	5	3	....	2	1	1	....	....	
20-40	....	1	4	2	5	....	1	....	1	3	1	....	9	9	....	....	
40-60	....	1	3	1	....	....	....	....	1	....	....	1	4	4	....	....	
Total	6	9	22	15	20	3	10	5	10	7	2	3	15	14	41	658	

cases under discussion, as the majority of them were patients treated either at free dispensaries or their homes.

According to occupation these cases were classified as follows:

TABLE 5.

MALES.		FEMALES.	
Out door work	65	Women and Girls at Home	210
Indoor work (Factory, Shop etc.)	190	Children (School 58)	99
Store	55	Factory or Shop	26
Teachers and Professional men	9	Store	13
Children (School 70)	103	Unknown	2
Unknown	68		
Total	490	Total	350

Of those employed in factories or shops 50 per cent. were tailors (operators, finishers, cutters, etc.), 15 per cent. cigar or cigarette makers. At least 70 per cent. of the tailors were operators employed in the so-called sweatshops of the Jewish district. Of the 65 engaged in outdoor work 15 were rag peddlers.

Unfavorable conditions inherent to employment could be considered to a great extent responsible for production of 284 cases, the number found in persons employed in factories, shops and stores. Four hundred and twelve, or 50 per cent. of the entire number of cases, occurred in women or children at home. These cases could be traced either to spread of infection in the same family, close association with a tubercular family in the same building, or occupation of premises previously infected by a consumptive.

The 677 cases of tuberculosis (589 among Jews and 88 among non-Jews) found in the Jewish district were distributed among 533 houses. Of this number 428 houses contained 1 case each; 75 houses, 2 cases each; 26 houses, 3 cases each; 1 house, 4 cases; 2 houses, 5 cases each; 1 house, 7 cases.

In 105 houses containing more than one case each, the number of infected families was 175, showing that spread of infection to neighboring families in the same building is probably almost as great as within the tuberculous families themselves.

It would require considerable investigation covering a long period of time in order to determine what proportion of the entire number of cases originated in houses previously infected by consumptives. That premises vacated by tuberculous families served as a frequent source of infection is shown by the fact that tuberculous family history could be elicited only in about one-half of the 412 cases that occurred in women or children at home; the other half could originate either from premises previously infected or close association with neighboring tuberculous patients.

The so-called Jewish district contains 3,996 dwellings; of this number 533 at the time of the investigation included 677 cases of tuberculosis. As statistics mentioned in this paper refer chiefly to the element of population frequenting charitable medical institutions, it would be a conservative estimate to say that at the present time there are at least 1,000 cases of tuberculosis in the district, or 1 case to 30 living, or one dwelling of every five is being infected. If records for the last few years are consulted, it may not be surprising to find that nearly every house in the Jewish district was at some time occupied by a tuberculous patient. Frequent changes of residence lead to continuous infection of new dwellings; still no effort was ever made toward systematic disinfection of premises vacated by consumptives. Medical men throughout the city familiar with the widespread occurrence of tuberculosis among the poor know very well that all these deductions could be applied with equal strength to all parts of the city where our poor live and work.

That the disease is on a constant increase among the poorer classes of population in this city is my earnest conviction. Unfortunately, very little has been done till lately to counteract its spread.

The United Hebrew Charities' West Side Dispensary took cognizance of this fact three years ago, starting a campaign of education in the Jewish district. By individual instruction and distribution of circulars, the members of the medical staff have endeavored to acquaint the Jewish poor with the nature of the disease and means of preventing the spread of infection. A large percentage of cases were kept under constant medical supervision. At the same time the United Hebrew Charities have done their best to ascertain and supply the needs of consumptives in this district. Through an understanding with the National Jewish Hospital for Consumptives in Denver about 60 incipient cases of tuberculosis, in a period of 18 months, were successfully treated in that institution. Of late the number of applicants increased to such an extent that the Jewish charitable organizations are gradually coming to the conclusion that even if selected cases continue to be sent to the Denver hospital, a sanitarium near Chicago ought to be provided for the vast number of Jewish tuberculous poor. The problem of eradicating the widespread occurrence of tuberculosis in the poor districts demands immediate solution, and it may be confidently expected that the Jewish charitable organizations, as usual, will contribute their share toward the solution of this great question of to-day.

No subject of medicine received more attention in the last 20 years than tuberculosis, its etiology and means of prevention. Koch's famous discovery gave an increased impetus to the warfare against this disease that for many centuries was decimating the ranks of humanity. To-day the medical profession stands united in a crusade that means saving of millions of lives every year, but ultimate success can follow only a complete change in conditions of life favoring occurrence and spread of this disease.

In Chicago the first opportunity of a systematic warfare against tuberculosis came with the organization of the Committee for Prevention of Tuberculosis of the

Visiting Nurse Association. During the first year of the existence of this committee the tuberculosis problem has attracted more attention in this city than at any previous time. A large number of tuberculous poor in various parts of the city were reached through its agency, and I am certain its influence is felt already in a higher degree of individual prophylaxis on the part of the public.

Of the many details of the tuberculosis problem, one—the thorough disinfection of houses vacated by consumptives—can be effectively carried on only by the municipal government. The Chicago Medical Society ought to go on record on this question and the Board of Health should be provided with sufficient means to do the work. I know the conscience of the local medical profession and community at large will not tolerate any more the enormous loss of life entailed by continuous reinfection of dwellings in the poor districts of this city.

The mere education of masses on the subject of tuberculosis may help a great deal toward solution of the grave problem confronting us, but any appreciable reduction of the frightful mortality from this disease can follow only a radical change in the hygienic conditions in which our laboring people live and work.

The campaign for better conditions should include: 1, cleaner streets, frequently sprinkled and swept; 2, complete abatement of smoke nuisance; 3, more playgrounds and parks; 4, erection of model dwellings where flats could be rented at a moderate price; 5, better hygienic conditions in factories and stores—in short, all measures designed to improve the conditions of life of the workingman. I may be permitted also to say that no measures of public policy concerning tuberculosis could be carried out to their full extent unless the city of Chicago passes a compulsory notification law.

In regard to hospital accommodations the tuberculous patient has been and remains the most neglected individual in the city of Chicago. Home treatment of tuberculosis in the poorer districts of the city can never be carried out with any degree of success unless the conditions in these districts are completely changed.

The Cook County Hospital for Consumptives, even completely reorganized under the plans of the present County Board, could accommodate only a fraction of our tuberculous poor. As the doors of every hospital in Chicago are at present closed to consumptives, the establishment of a large sanatorium outside the city limits is a need that ought to be fulfilled in the near future.

Before closing this paper I wish to emphasize the following points:

1. The so-called immunity of Jews from tuberculosis is greatly overestimated.

2. As tuberculosis is a social disease, the prevalence of which is determined by unfavorable conditions of life, its eradication can only be accomplished by the combined efforts of the state, laity and medical profession.

3. That better housing conditions, dissemination of knowledge concerning tuberculosis and its prophylaxis, compulsory notification, thorough disinfection of premises previously occupied by consumptives, and establishment of public sanatoria for treatment of this disease would put an end to its present widespread occurrence.

My thanks are due to Miss Bertha Hazard (resident of Hull House), for valuable assistance in the investigation of the central block of the Jewish district, and Dr. Alice Hamilton of Hull House, for examining the records of county institutions and Central Free Dispensary.

THE DIAGNOSIS OF SCARLET FEVER AND SCARLATINOID AFFECTIONS.*

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PHILADELPHIA.

Of all the acute eruptive fevers, scarlatina, in obscure cases, offers the greatest difficulties in diagnosis. In well-pronounced and typical cases the nature of the disease is quite clear. When all the symptoms are well developed an unmistakable syndrome is presented. Who could fail to diagnose a disease characterized by sudden vomiting, high fever, prostration, diffuse punctiform rash, circumoral pallor, red and swollen throat, enlarged glands and strawberry tongue, followed by desquamation, otitis media and albuminuria? But the picture is frequently incomplete.

Those who have had experience with scarlet fever have observed that in very mild cases all the symptoms are commonly poorly marked. When the eruption is intense the throat is usually severely attacked, the tongue is characteristic and the fever is high. When, on the other hand, the general symptoms are very mild, the rash is, as a rule, faint and poorly developed.

It is under the latter circumstances that the diagnosis becomes difficult, for the complex of symptoms on which the foundation of the diagnosis rests is too weak to support it.

How often do we see cases in which the rash is faint, the constitutional symptoms mild, and the throat and tongue uncharacteristic. The evidence appears very slender on which to base the diagnosis of disease which necessitates six or eight weeks of isolation and sundry other inconveniences. Under these circumstances the physician will do best to postpone the pronouncement of a diagnosis until the further course of the disease is watched. In some cases it will remain impossible even in the light of subsequent events to be sure of the scarlatinous nature of the disease. This is a humiliating admission, but the interests of truth demand that the limitations of our knowledge be frankly confessed.

I believe that in no other acute diseases are so many errors of diagnosis made as in scarlet fever. On the one hand, many cases of extremely mild scarlet fever are overlooked, and on the other, rashes from other causes resembling that of scarlet fever are not infrequently diagnosed as the latter disease.

It should be remembered that there is no one symptom of scarlatina which is pathognomonic of the disease. The rash, the most conspicuous symptom, and the one which has given the affection its name, is not in itself characteristic, inasmuch as a practically identical exanthem may occur in other conditions. Nor does its absence entirely exclude the diagnosis of scarlet fever. Indeed, we may have a scarlatina without eruption (*scarlatina sine eruptione*), without fever (*scarlatina sine febbre*), or without sore throat (*scarlatina sine angina*).

In the formulation of a diagnosis each of the composite symptoms of the disease has a relative value. It may prove of interest to discuss the importance to be attached to some of the manifestations of scarlet fever.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. H. W. Stelwagon, J. A. Fordyce and H. G. Anthony.

ETIOLOGIC EVIDENCE.

The diagnosis in cases of scarlet fever with obscure symptoms is often clarified by the discovery of the disease in a person to whom the patient has been exposed. In institutions for children the existence of an epidemic often clears up an individual diagnosis which would be quite impossible to make under ordinary circumstances. Close inquiry and examination will sometimes discover a desquamating and unrecognized case of scarlet fever to be the origin of an institution epidemic.

The diagnosis of scarlet fever in doubtful cases is sometimes confirmed by the disease being transmitted by the suspected patient to another person.

I recall a recent case which emphasizes the importance of such information. A colored child was admitted to the Polyclinic Hospital suffering from a severe burn. About forty-eight hours after admission the temperature rose to 105 F., and a scarlatiniform rash

Fig. 1.—Epidermal casts from a fatal case of scarlet fever.

appeared on the body. Nothing characteristic was observed in the throat or on the tongue. The symptoms might well have been attributed to an intoxication due to the burn. Nevertheless, the child was isolated and a special nurse assigned to look after it. In about four days this nurse fell ill and passed through a well-pronounced attack of scarlet fever.

DIAGNOSTIC VALUE OF THE SO-CALLED STRAWBERRY TONGUE.

In the very beginning the tongue in scarlet fever is heavily coated with a whitish fur, through which scattered red papillæ are frequently visible. In about forty-eight hours the coating peels off, and there is seen a red tongue studded with enlarged papillæ. This condition of the tongue is certainly a symptom of considerable diagnostic importance, and its presence or absence in doubtful cases should be determined and considered in formulating the diagnosis. But several sources of error must be kept in view. In mild cases of scarlet fever in which the rash and general symptoms leave doubt as to the nature of the disease, the tongue often fails to present its characteristic appearance. I can not agree with McCollom of Boston, who says that the enlargement of the papillæ is present in every case of scarlet fever, if carefully looked for. I have certainly seen a number of children in scarlet fever wards whose tongues have been quite normal in appearance. Most of these children had mild attacks.

On the other hand, the tongue in well persons shows a variable amount of prominence of the lingual papillæ. I have examined the tongues of a large number of people with a view of determining this point. Anyone who repeats this experience may satisfy himself that the tongue under normal conditions exhibits wide variations in the size and prominence of the papillæ. Moreover, there are certain chronic forms of superficial glossitis in which the papillæ are quite large.

It must be remembered, too, that the most typical strawberry tongue may in rare cases occur in affections other than scarlet fever. In a few severe cases of scarlatiniform erythema, occurring during the course of smallpox, I noted very distinct strawberry tongues.

However, these exceptions do not invalidate the force of the statement that the presence of pronounced enlargement of the lingual papillæ in cases suspected of being scarlet fever, is strong confirmatory evidence. The negative value of the absence of the characteristic tongue is of less importance.

THE DIAGNOSTIC VALUE OF DESQUAMATION.

The statement is sometimes made that the occurrence of desquamation after a scarlatiniform eruption proves the scarlatinal nature of the preceding exanthem. Those who have observed cases of scarlatiniform erythema of the desquamative type recognize the fact that exfoliation of the epidermis is not a phenomenon peculiar to scarlet fever.

It is a mistake to regard every diffuse rash that desquamates as scarlet fever. The eruption of scarlet fever is in all probability of toxic origin; there are other toxins which appear to be capable of exciting rashes which resemble that of scarlatina. Scaling is the terminal stage of certain pathologic alterations in the skin and the changes in the skin in scarlatiniform erythema are much the same as those occurring in scarlet fever.

The scaling in certain cases of desquamative scarlatiniform erythema is much more extensive than occurs ordinarily in scarlet fever. The occurrence of well-marked lamellar desquamation has more significance, therefore, in differentiating scarlet fever from other affections than from these exfoliating erythemata.

It may be true that the amount of scaling in a rash of given intensity is more pronounced in scarlet fever than in most rashes which simulate it; but exception must be made of desquamative scarlatiniform erythema, which not infrequently causes an exfoliation of the skin in large areas, leading on the palms and soles, to the throwing off of the epidermis *en masse*. This occurs very rarely in scarlet fever.

Too much importance has been attached to the mere occurrence of desquamation in scarlet fever; the time of the onset of scaling, its mode of progression and its persistence are of more diagnostic importance.

Desquamation in scarlet fever is usually observed first on the face. This is often seen from the fourth to the sixth day. About the sixth day the same process is

noted on the neck and upper portion of the chest. The hands ordinarily begin to desquamate from the twelfth to the fourteenth day. On the feet scaling may not commence until the third week.

Scarlatinoid eruptions, in my experience, begin to scale more quickly, particularly on the hands and feet. I have seen a well-marked scarlatiniform eruption occurring in smallpox lead to exfoliation of large pieces of the palmar and plantar epidermis on the sixth day. I believe also that scarlet fever scaling persists longer than scaling after scarlatinoid rashes. I should not insist on the correctness of this observation, however, as scarlet fever patients are scrutinized more closely and for a longer period than the non-scarlatinal cases; minute desquamation would thus be detected for a long time in scarlet fever and overlooked perhaps in other conditions.

A form of scaling which is commonly seen in scarlet fever, is that which begins just beneath the free border of the finger nails, extending thence down the fingers and exposing to view the new pink epidermis beneath. This appearance is so frequently present as to be suggestive of the disease.

DIFFERENTIAL DIAGNOSIS.

Among the affections which are to be distinguished from scarlet fever, the most important are those grouped under the designation of *erythema scarlatiniforme* or *scarlatinoides.*

This affection, if it may be called such, is characterized by an eruption which may be quite indistinguishable from that of true scarlet fever. It may be diffused over the entire cutaneous surface, and may be punctiform. It is often sudden in its onset, and may be attended with malaise and moderate rise of temperature (100 to 102 F.). Occasionally the initial pyrexia is higher, but under such circumstances it soon declines. The throat may be reddened, but there is no swelling of the tonsils and usually no complaint of sore throat.

The eruption has about the same duration as that of scarlet fever, although it is often briefer. It is followed by a desquamation, which is ordinarily branny, but which may take place in large flakes.

Desquamative scarlatiniform erythema, termed by some writers *acute exfoliative dermatitis,* differs from the above type in degree rather than in kind.

It is characterized by the appearance of an extensive, often punctiform erythema, which rapidly covers the entire body, and is accompanied by more or less febrile disturbance. In the course of three or four days the skin begins to desquamate profusely, being thrown off in large lamellæ or sheets. Epidermal casts of the palms and soles, looking not unlike gloves or slippers, may be exfoliated. The nails may be lost, and in severe cases the hair also. Before the skin has returned to its normal condition a relapse may occur characterized by fever, erythema and a second desquamation. In some cases three or four such relapses may take place.

This type of the disease is peculiarly prone to recurrences, which may appear every six months or a year. Sometimes marked periodicity is exhibited, the recurrent attacks developing with almost calendar precision. Doubtless many of the cases of scarlet fever recorded in the literature of the subject, which are alleged to have recurred five, six or more times, were in reality cases of scarlatiniform erythema of the desquamative type.

These eruptions are due to toxic or septic states, or to the action of drugs or sera. Simple scarlatiniform erythema may occur during the course of various infectious processes, such as rheumatism, septicemia (puerperal or other forms), pyemia, malaria, typhoid fever, etc. An evanescent scarlatiniform rash may appear before the true exanthem of measles, varicella, smallpox and vaccinia.

All grades of scarlatiniform erythema may develop during the stage of decrustation of smallpox.

Diphtheria antitoxin and other sera may produce scarlatiniform rashes, which bear the strongest possible resemblance to scarlet fever.

The drugs which most commonly give rise to scarlatiniform eruptions are quinin, mercury, belladonna and salicylic acid.

Fig. 2.—Epidermal casts of palms and soles from a case of dermatitis exfoliativa.

Many other medicaments occasionally produce scarlatinoid rashes in susceptible subjects. The eruption resulting from the administration of quinin is the most frequent and the most likely to be confounded with scarlet fever. It may be followed by well-marked desquamation.

It is often a matter of great difficulty to differentiate scarlatiniform erythema from true scarlet fever. In the former the invasive symptoms are often extremely mild; the patient commonly does not complain of feeling ill; the temperature elevation is slight, perhaps 101 or 102 F. The throat may be reddened, but the tonsils and uvula are not swollen, and exudate is not present on the tonsils. The reddened papillated tongue is, as a

rule, absent. The eruption may begin on any portion of the body; it may be patchy or irregular, or it may be diffuse, with or without punctation. The glands at the angles of the jaws are not apt to exhibit any pronounced enlargement; albuminuria is rare and otitis media does not occur.

It is thus seen that scarlatiniform erythema may be readily distinguished from a well-pronounced attack of scarlet fever; but the fact must not be overlooked that there are many mild cases of scarlet fever in which the fever is slight, the eruption poorly marked and the other symptoms correspondingly uncharacteristic.

The significant feature in scarlatiniform erythema, particularly when the rash is well pronounced, is that the intensity of the eruption is out of all proportion to the amount of constitutional disturbance. There is not present the prostration and high fever which would accompany a rash of similar severity in scarlet fever. Furthermore, there is never seen in scarlatiniform erythema a severe sore throat.

Another point of great diagnostic importance is the history as to previous attacks; the tendency to recurrence is a well-recognized feature of scarlatiniform erythema.

It may be remarked, in conclusion, that a proper sense of proportion must be cultivated in formulating the diagnosis of an obscurely developed disease. The various manifestations constituting the composite symptomatology of scarlet fever have each a relative value and their presence or absence must be given due weight in the conclusions that are drawn.

DISCUSSION.

DR. WILLIAM T. CORLETT, Cleveland—In my experience the strawberry tongue, which is quite characteristic at a certain stage of scarlatina, often develops so late that it is of little value as a diagnostic point. The tongue is often very much coated, and sometimes it has been two days before the coating has been sufficiently removed to make the picture of strawberry tongue complete, and in the meantime the rash has made its appearance. I agree with the essayist as to the difficulty in making a differential diagnosis between false scarlet fever and the true disease, and also in the recognition of many of the less frequent types of scarlet fever.

THE TECHNIC OF WOUNDS INCIDENT TO LAPAROTOMY.*

HENRY O. MARCY, A.M., M.D., LL.D.
BOSTON.

The currents and counter-currents of surgical opinion have nowhere better illustration than in the treatment of wounds. Through the warp and the woof of history there are continually appearing and disappearing, in the experience of the ages, many truths which have their demonstration only in this later day of crucial science. The Egyptians, the Greeks, the Romans, all used antiseptics, in varying degree of value. This we recognize in the balsams, vinous preparations, terebinthinates and mineral oils. More or less obscurely they also recognized the value of drainage and cleanliness in wounds.

After amputations, the application of boiling oil or the actual cautery served an admirable purpose for primary disinfection. To my mind, one of the greatest evidences of the genius and power of Ambroise Paré lies quite as much in his overcoming of conservative prejudice against the introduction of the ligature as a hemostatic as to the value of the discovery itself.

The late Henry J. Bigelow one day, about the beginning of the Civil War, introduced to us the famous Dr. Reuben D. Mussey as the leading exponent of surgery of the previous generation, with the statement that such a master could easily familiarize himself with all the improvements which the generation had contributed to our art, within the short period of three months.

Somewhat recently I have examined my old copy of Heister's Surgery, published in 1750, which served as the text-book of continental Europe for at least three generations, and am surprised at the favorable comparison of this book with the Surgerys of 1850, especially so far as concerns the technic of wounds. My own experience in the war of the rebellion differs not so very materially from that of a surgeon in the Napoleonic campaigns. It is, indeed, true that the surgical history of our late war, as written by my first master, George A. Otis, is the monumental contribution of military surgery, but as I re-read it and review my own military experience, I have only to lament our lack of knowledge as then exemplified in both military and civil surgery.

The immortal McDowell is justly accredited the father of ovariotomy. He has been sometimes called the backwoods surgeon, unhampered by the conservatism of surgical teaching, but such a critic forgets that he probably obtained his inspiration to perform this wonderful service from the Edinburgh school, then dominated by Dr. Young. He tied the pedicle with an Indian tanned deerskin ligature, at that time more or less in common use for the ligation of arteries. The ligature was cut short and the pedicle dropped back into the abdominal cavity.

The subject was taken up with the interest belonging to novelty and its possible importance. The medical journals of this period are replete with contributions, but more especially with dissertations of warning from the seniors who saw little but catastrophe that could result from thus imperiling human life. American inventive genius was fertile in expedients with which to meet every complication. The mortality rate was necessarily high and infection the rule rather than the exception. Very naturally the cases operated on presented most formidable complications, since surgery was accepted as a last resort; more commonly, frequent tappings had preceded the operation. Adhesions were the rule rather than the exception, and multiple hemorrhages common. Drainage was usually insisted on, even in the most simple cases. The treatment of the pedicle was emphasized as one of the most important factors of the problem. Since in amputations it was the almost undeviating rule that the vessels should be ligated with heavy silk, tied very tightly, left long to serve the purpose of drainage and subsequent removal, so it naturally followed, as a common practice, to ligate the ovarian pedicle and bring the ligatures, left long, out through the abdominal wound. By the process of sloughing, in both instances, the ligatures were ultimately to suppurate free and be removed.

A notable exception to this rule was a contribution by Dr. J. F. Miner of Buffalo, N. Y. He called it stripping the pedicle, since he had observed that the ovarian cystoma could be removed from its peritoneal envelope almost without hemorrhage, because the vessels were distributed through it and did not penetrate the cyst wall. The obvious purpose of this method was to avoid the ligatures and the resultant sloughing. The pedicle was

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Obstetrics and Diseases of Women, and approved for publication by the Executive Committee: Drs. J. H. Carstens, A. Palmer Dudley and L. H. Dunning.

returned within the abdominal cavity, often without drainage.

A modification of the treatment of the pedicle, as a distinct improvement, was that of Horatio B. Storer of Boston. He called it the pocketing of the pedicle. It consisted of a separate ligation of the vessels and the suturing of the pedicle to the peritoneum, including the free surface of it in the abdominal wound. This, as we see, was an extraperitoneal of the stump *from above*. The advantages claimed for this method were the control of bleeding points within easy reach, if secondary hemorrhage occurred, and the shutting off the peritoneal cavity, with drainage only of the wound in the abdominal wall.

More or less obscurely the surgeons recognized the occult danger of infection, called by them under the general name of inflammation or blood poisoning.

My old master, Dr. Marion Sims, laid special stress on the reddish serum which accumulated within the pelvic peritoneum as a source, or cause, of great danger. Obviously, to his mind, mechanical means must be provided for its removal. This, to many, seemed most easily effected by the introduction of a large glass drainage tube to the bottom of the pelvis, through the abdominal wound, which was to be followed, for a considerable period after the operation, by the withdrawal of the fluid secreted, by means of absorbent cotton, or sponge introduced, at short intervals, on a probe, for its absorption.

For a very long period the best operators in the world used the clamp and the cautery in the treatment of the pedicle, experience having taught them that there was a very considerable danger from hemorrhage, when the ligature alone was relied on. This obtained prominence especially from the teaching of Sir Spencer Wells, whose experience was far greater than any other contemporaneous operator and whose results were equaled or surpassed by no other except, perhaps, Keith of Edinburgh.

SUTURES.

During all this period the abdominal wound was closed by deep through-and-through silk sutures, usually tied very tightly. The profession is indebted to Sir Spencer Wells for especially pointing out the importance of including the peritoneum within the grasp of the suture.

This was the technic until modified by the teachings of antiseptic principles.

It seemed to me a safe deduction, based on the experience of Sir Joseph Lister, that if an artery could be occluded by an animal suture, cut short, and the wound closed, to be followed by primary union, the ligature being absorbed and disappearing, that it would be equally safe and advantageous to close all aseptic wounds with buried absorbable sutures, the subsequent danger chiefly to arise from infection. Given an aseptic wound, no matter how large, well-vitalized structures aseptically closed by aseptic, absorbable sutures, primary repair will follow.

As the result of my studies with Sir Joseph Lister, in 1870, I determined that the above premises were theoretically correct and that the demonstration should apply equally to wounds in all parts of the body. I made a long series of comparative studies on the lower animals, with the demonstration that an absorbable suture thus buried in well-vitalized structures was surrounded by leucocytes, slowly invaded by them, and that, little by little, *pari passu*, as absorption of the material took place, the leucocytes themselves became transposed into connective tissue cells, leaving as a permanent result more or less well-defined vitalized connective tissue structures holding the coapted parts in firm union. It was also demonstrated that a silk suture was surrounded with leucocytes in a somewhat similar way, invaded in a measure by them, but that absorption and disappearance very rarely took place; in a word, *encapsulation* rather than *absorption* occurred. Of course, such teaching was revolutionary. There are still many doubting critics.

The use of silk even as a buried suture, unfortunately, as I think, is still common, although the buried absorbable suture is in daily use in every part of the civilized world. Aseptic methods and buried sutures have necessarily revolutionized the technic of abdominal surgery.

In all aseptic wounds, very naturally the drainage tube, so long maintained as necessary, is now demonstrated as not only useless but dangerous.

The pedicle of an ovarian tumor is sutured only sufficiently tight to control hemorrhage and the divided structures are covered by intrafolded peritoneum.

TUMORS OF THE UTERUS.

The removal of the solid tumors of the uterus presented a much more serious and dangerous problem. As a rule, there was no pedicle which could be treated easily by clamp and cautery as by the earlier, then advised, treatment of the pedicle of ovarian tumors. This, however, was attempted by many operators. In the seventies I recall an operation by the late Dr. Kimball of Lowell, where a fibroid tumor was removed and the stump of the tumor clamped with a large pair of strong forceps which were, advisedly, left for some days extruding through the abdominal wound. Suppuration was abundant and later death followed from tetanus.

It was a safe deduction that the cervical portion of the uterus could be closed over with healthy peritoneum, by means of buried sutures, after the removal of a uterine tumor, and the abdominal wound closed as in ovariotomy, without drainage. This operation was described, in its technic and results, in a paper by me, before the International Medical Congress at London, in 1881. The stump of the uterus was described as closed over by a layer of intrafolded pelvic peritoneum, leaving no open wound within the abdominal cavity, the stump or pedicle being extraperitoneal *from below*.

It would be a work of supererogation to detail to you the currents and counter-currents of opinion in surgical treatment of the pelvic structures during the last fifteen years.

I believe it to be generally accepted that drainage should be limited to septic cases and that here, better than ever, we understand its importance.

In order to avoid adhesions all pelvic lesions should be covered, so far as possible, by healthy peritoneum, which usually lends itself easily to intrafolding by fine, continuous, absorbable sutures.

The future comfort and welfare of the patient is greatly enhanced by the careful closure of the abdominal wall. There are many manifest advantages in the coaptation of the sundered parts by lines of buried sutures. The peritoneum is carefully coapted, including the delicate layer of connective tissue lying behind the recti muscles. The tendinous structures of the linea alba are similarly rejoined, both, preferably, by a double continuous tendon suture. The careful reunion of the combined tendons of the lateral muscles is by far the most important factor in the prevention of ventral hernia. For many years I have used a carefully selected rather

large kangaroo tendon chromicised suture, applied by the use of a needle with eye near point carrying the suture in opposite directions through the stitch hole, the sadler's or shoemaker's continuous sewing. This evenly coapts and holds firmly at rest the thick mass of rejoined structures. Avoid undue constriction. With proper technic ventral hernia does not supervene. A light running, subcuticular tendon suture completes the coaptation of the skin.

The wound is sealed with iodoform collodion, reinforced with a few fibers of absorbent cotton, and the work is completed, for good or ill, before the patient leaves the surgery. For good, since like structures are aseptically rejoined and are restored to their former completeness and strength.

Hemorrhage is scarcely possible, and if the tissues have been maintained aseptic, primary union will follow. It is worse than useless to punish your patient with an abdominal supporter, since the restoration will be complete and permanent. If imperfect coaptation and restoration follow, a bandage can by no means remedy the evil.

If such a wound is infected it is in the worst possible condition for restoration, as bacterial colonization is likely to follow the line of every buried suture, giving wide areas of septic infection. Therefore, the methods above outlined should never be attempted by one who is not the master of modern, aseptic, surgical technic.

DISCUSSION.

DR. A. GOLDSPOHN, Chicago—It is of interest to have our attention called to several very important features in technic that some of us observe to some degree, but that, I am satisfied, are not observed so far as should be. I mean, particularly, the care to close the abdominal incision in layers, that is, reuniting the structures in the position in which they were originally, particularly reuniting the aponeurosis in front of the recti. From that there can be no dissent on correct anatomic grounds. I will challenge anyone to show consistent reasons for neglect to reunite the aponeurosis in front of the recti muscles, do he otherwise what he will in the technic of closing the abdominal wall. On this ventral hernia hinges. If that is attended to properly there will be no hernia, in the absence of long continued drainage, or suppuration. Dr. Marcy made a very good remark when he said that the comfort of the patient will depend very much on this and one other thing; that is, excluding all raw surfaces within the abdominal cavity. What does that mean? What do you see so many good abdominal surgeons do if they have an omentum adherent to a tumor, or in a ventral or other hernia? They dissect and tie it off very carefully, and drop it back; a broad, raw surface, which, in the order of things, must become adherent to something. The correct thing is to carry the peritoneum over this amputated stump of omentum, just as you cover over the stump in the removal of the uterus or its appendages, thus aiming to avoid leaving any surface in the abdominal cavity that is not covered with a serous membrane.

DR. H. W. LONGYEAR, Detroit, Mich.—The question of closing the abdominal wall has been a hobby of mine for years. I wrote a paper on that subject and read it before the American Association of Gynecologists some ten years ago, and preliminary to writing it I corresponded with a number of operators, both in this country and abroad, and asked their opinion as to the causes of post-operative hernia; it was remarkable how few gave the cause as non-union of the aponeurosis. Many said, "Because of non-union of the muscular structures." Others said, "Non-union of the peritoneum and skin," but not more than two or three said that it was due to non-union of the aponeurosis. It seems to me that that is the cardinal point in the entire business. No matter where the incision is, if you do not close it in such a way that the aponeurosis will unite you will be almost certain to get hernia. I use the method Dr. Marcy described, although I have discarded one part of it. I close the layers up to the skin, as he does, then, instead of using the subcuticular buried suture, I sew with very fine catgut, making an external buttonhole stitch cover with gauze and adhesive plaster, leaving a little window in the plaster over the middle of the gauze. This change was made because in a few cases I had some hemorrhage under the collodion seal which clotted and prevented perfect union. I have found this to be exceedingly satisfactory and an ideal method.

DR. W. B. DORSETT, St. Louis, Mo.—I wish to make one point, and it is this: If ligatures are to be used, an animal ligature, and a small ligature, is best. Some of you may be familiar with the report of two cases of tetanus that I lost from the use of kangaroo tendon. Kangaroo tendon above No. 2 or 3 can not be made aseptic. In my cases sections were made of unused kangaroo tendon, and bacteriologic experiments were made on mice and guinea-pigs, and it was demonstrated, beyond a shadow of a doubt, that the kangaroo tendon was infected with tetanus germs. Since then I have been in the habit of using the angiotribe as often as possible. I appreciate the fact that it will often devitalize parts by crushing, but at the same time it is aseptic, and the ribbon of tissue can be turned in with a small catgut ligature. I discarded silk long ago, except for an appendectomy. The matter of position of the parts has been brought up, but the secret lies in the fact that in order to be successful in the closure of the abdominal wound we must unite connective tissue only. Therefore, close the peritoneum first with a small 00 catgut ligature, then the aponeurosis and then the muscle, and the skin will take of itself in a majority of cases. Never tie the sutures tightly, only enough to bring tissues in apposition.

DR. HENRY O. MARCY—We should have few or no broken intraperitoneal spaces. Two years ago I presented a paper on that subject to this Section. I based it on a hundred consecutive hysterectomies done in my private hospital by myself and under my subsequent supervision. I had four deaths; three were from intestinal obstruction, brought on by the adhesion of the intestines to the intraperitoneal space. I made emphasis of the history of these cases to show that notwithstanding we exercise care, we find room for improvement. If, as Dr. Dorsett said, a very fine suture is used and with the parallel stitch, as I call it, running the needle parallel to the long axis of the wound and a certain distance from it, the unbroken peritoneal spaces are easily infolded and the stitches buried out of sight. The suture will absorb and disappear and union supervenes in a comparatively few hours. I have felt that the kangaroo tendon suture had every recommendation, because it is very seldom infected at the beginning; and yet, so carelessly is it preserved, that out of 100 pounds sent me from Australia, I burned, some time since, over 90 pounds of it at once. The supply houses have not recognized the difference between good and bad material, and, possibly, I have made the mistake myself. I am extremely careful in sterilizing it, and, in my opinion, the best thing to use is formaldehyde. If you use it too strong or too long, you ruin the material, but you can permeate the tendon thoroughly with it and not damage it in the least. Mr. Lister long ago found that by steeping catgut in carbolic solutions for a sufficiently long period it will be sterilized, and that the thicker the suture material the more difficult the sterilization, and, in consequence, advocated and practiced the using of fine suture material. But the tendon suture from any animal, as a rule, should be free from tetanus germs and can be infected only by careless handling. Kangaroo tendon should be kept dry after it has been sun-dried subsequent to its removal from freshly killed animals. If we could get just what we ask for, kangaroo tendon would be cheap and not expensive, safe and not dangerous. Careful handling in its preparation is the first essential. So far, much of it sent here has been very carelessly put up. In reference to dead spaces, do not permit them if you can prevent it. If you have a dead or open space, and it fills with a clot, it must be kept at rest, and being aseptic, nature will take care of it. If septic, it is a culture chamber

of the greatest danger. Out of 600 consecutive major operations I had 2 per cent. of infected wounds. That is 2 per cent. too many, and theoretically should have been prevented. I welcomed the rubber glove, and last year I showed you my improvements in the fine pebbling of the surface. The hands of your assistants, to say nothing about your own hands, are safe. Everything pertaining to the technic of absolute sterilization must be emphasized. In reference to the suture for the closure of the skin: The subcuticular suture is important; a fine suture being taken through the deep layer of the skin, the suture is absorbed before the skin proliferates. If taken sufficiently deep, the suture being fine and sterile, the so-called stitch abscess will not occur. If you penetrate a sweat duct you may have infection. I have seen this time and again, and I am emphasizing more and more every day the extreme care that is necessary, of using a fine suture, and placing it so deeply that it will not penetrate a sweat duct, this preventing infection from the *Micrococcus pyogenes albus*.. Will you trust a long wound to three or four layers of buried sutures sealed with iodoform collodion? I do it in the great majority of cases, but if the patient is likely to become uneasy, I bandage for two or three days and put on strips of adhesive plaster. It is far safer and you need not worry about the subsequent conduct of the case. I agree that silk is not the best material for sutures, and that the buried absorbable suture tendon preferred, holds a first place in modern aseptic surgery.

Special Articles.

THE UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

PART I. A HISTORICAL SKETCH.

(B) DR. WOODWORTH'S ADMINISTRATION, 1871-1879.

(*Continued fom page 328.*)

Supervising Surgeon John M. Woodworth was a man of conspicuous ability and untiring energy. He had been appointed assistant surgeon, U. S. Army, in 1862, and had been promoted successively to surgeon and medical director of the Army of the Tennessee.

During the "march to the sea" he was in charge of the ambulance train, and made the remarkable record of bringing his sick and wounded to Savannah without the loss of a man.

He was eminently fitted for the work intrusted to him—the reorganization of the Marine-Hospital Service. He combined the ripe experience of the trained disciplinarian with the energy and enthusiasm of youth, and he used his rare combination of abilities unsparingly in the accomplishment of his work.

He effected the reorganization as provided for by this act with a promptness commensurate with the magnitude of the undertaking. He prepared regulations (1873) based on the act just mentioned, by which the candidates were henceforth to be appointed only after examination before a board of officers, and were liable for general service in any part of the United States. The regulations also provided for the maintenance of discipline on a military basis, and for regular systematic reports and methods of obtaining subsistence supplies. The independent local appointees who presided over the various stations previous to the reorganization were either assimilated into the general service or gradually replaced by regular officers.

In company with Dr. E. M. McClellan, U. S. Army, under a special act of Congress, Dr. Woodworth gathered information relative to the cholera epidemic of 1873. The result of this work, published by Congress, entitled "The Cholera Epidemic of 1873," is one of the most valuable contributions to the literature of the disease.

In 1875 Congress recognized the ability of Dr. Woodworth and the growing importance of the service by changing his title to supervising surgeon general, and providing that the supervising surgeon general should be in future appointed by the President, by and with the advice and consent of the Senate. His salary was increased from $2,000 to $4,000, and was in future to be paid out of the marine-hospital fund.

Dr. Woodworth's interest in sanitary matters was responsible for the issuance of the first circular letter defining the duties of marine-hospital officers in regard to quarantine and the public health. A law passed in 1799, which had become a dead letter, was revived, and thereon, in 1875, Supervising Surgeon-General Woodworth based his circular. The medical officers of the Marine-Hospital Service were directed in this circular to make a special study of local health laws and regulations in force at their respective stations. They were directed also to obey these laws, and render prompt assistance in their enforcement, when requested by the proper authorities.

The head of the service directed his efforts from this time toward securing a more uniform system of inspection of arriving vessels and a shortened period of quarantine detention. He considered the detention of a vessel from an infected port, whether sickness existed aboard or not, barbarous and unjustifiable, when the length of the period of incubation of the disease quarantined against was known. In his annual report for 1875 Supervising Surgeon-General Woodworth said:

That a vessel arriving at a port between the first day of May and the first day of November from a place where contagious disease existed at the time of departure should be, by law, subjected to a quarantine of thirty days' detention, no matter whether contagious disease has appeared aboard the vessel or not, seems incredible. No stronger argument need be advanced to show that the general government in the exercise of its acknowledged powers—that, for example, to regulate commerce and to provide for the general welfare—should regulate quarantine to such an extent as that the law shall at least keep pace with science.

In a paper read before the International Medical Congress at Philadelphia in 1876, the supervising surgeon-general said:

From what has preceded, the following conclusions appear to be justified: (1) The supervision of ocean travel ought to be directed to securing good sanitary conditions for vessels at all times, out of, as well as in, port. (2) A system of port sanitation should be adopted and administered for each country or place separately, and should be modified in particular cases by taking into account the liability of the port of infection, the period of incubation of the disease, the length of time consumed in the voyage, and the measures enforced by the vessel en route. (3) In some countries the detention of passengers and crews of ships hailing from infected ports is warranted, but for such time only as is necessary to complete the period of incubation of cholera or of yellow fever, counting from the date of departure from an infected port or of landing from an infected vessel. In no instance should passengers or sailors be held for observation on board an infected vessel, and such vessel should not be detained beyond the period required for inspection and for thorough disinfection and cleansing. (4) Recognizing the fact that the morbific causes of infectious disease may sometimes elude the most vigilant sanitary supervision of shipping, the importance of wisely directed internal sanitary measures can scarcely be overestimated. (5) As far as America is concerned, it is desirable that prompt and authoritative information should be had of the shipment of passengers or goods from districts infected with cholera or yellow fever, thereby insuring the thor-

ough disinfection of infected articles. (6) The endemic homes of cholera and yellow fever are the fields which give the greatest promise of satisfactory results to well directed and energetic sanitary measures, and to this end an international sentiment should be awakened, so strong as to compel the careless and offending people to employ rational means of prevention.

Supervising Surgeon-General Woodworth's enlightened ideas on quarantine measures were largely responsible for the framing of the quarantine law of 1878, and the general principles he advocated were so far in advance of his time that, with slight modification, they would serve to-day. He was the first to recommend inspection at infected foreign ports of American-bound ships, and demonstrated that an intelligent quarantine, maintained in this way, facilitated rather than impeded commerce.

In 1878 he organized the yellow fever commission, which was sent south to gather information in regard to the epidemic of yellow fever which had devastated the southern states. The work of this commission was reported to the American Public Health Association, and Dr. Woodworth was appointed chairman of a special committee of medical men and scientists, which was to continue the investigation of yellow fever in the south and measures to prevent its spread. His sanitary work laid the foundation for the future development of the public-health functions of the service, and by his capacity for organization, the service was completely transformed.

The loosely connected aggregation of local appointees which, previous to 1871, constituted the Marine-Hospital Service, was, by a system of weeding and welding, and by the addition of new material obtained after rigid examination of applicants, converted into a homogeneous corps, whose members were of known efficiency and available for service in any part of the country.

Although the development of the public-health work of the service really began with the administration of Supervising Surgeon-General Woodworth, for more than a century the Secretary of the Treasury has been regarded as the supreme authority in national quarantine matters.

So long ago as May 27, 1796 (1 Stat. L., 474), a law was passed by Congress authorizing the President "to direct the revenue officers and the officers commanding forts and revenue cutters to aid in the execution of quarantine, and also in the execution of the health laws of the state, respectively, in such manner as may to him appear necessary." It will, therefore, be seen that even at that distant day, 108 years ago, the first step toward co-operation of state and national authority in health matters had been taken. An act passed Feb. 25, 1799 (1 Stat. L., 619), repealed the act of 1796, and provided for quarantine of vessels, measures to be taken in case of epidemics, etc., placing maritime quarantine under the Secretary of the Treasury.

The act of May 26, 1866 (14 Stat. L., 357), placed authority to make quarantine regulations for prevention of the introduction of cholera in the hands of the Secretary of the Treasury until January, 1867. During the year 1878 a law was passed establishing a national quarantine, and the Supervising Surgeon-General of the Marine-Hospital Service, under the Secretary of the Treasury, was empowered to frame regulations governing quarantine, but no appropriation was made to carry the act into effect. This act also provided that consuls or other representatives of the United States in foreign ports where contagious diseases existed, should immediately give information of the sailing of vessels from such ports to the Supervising Surgeon General of the Marine-Hospital Service, and that they should also make weekly reports of the sanitary condition of the ports at which they were stationed.

This act of 1878 further provided that the supervising surgeon general should prepare and transmit to officers of the Marine-Hospital Service, to collectors of customs and state and municipal health authorities in the United States weekly abstracts of the consular sanitary reports, and other pertinent information received by him.

During the same year the terrible epidemic of yellow fever occurred in the Mississippi Valley, and in February following Congress passed another law (act approved Feb. 3, 1879) establishing a National Board of Health. The latter act embodied all the essential features of the former, but changed the executive authority by substituting a board (national board) composed of seven members, and carried with it a large appropriation. The act of 1879 was limited to a period of four years, and on its expiration the law of 1878 was revived, and became operative by means of the contingent fund appropriated by Congress to be expended by the President of the United States, in his discretion, in preventing the spread of epidemic diseases and in maintaining quarantine at points of danger. This discretion was used by the President as above indicated, and the work contemplated by the appropriation act was performed through the agency of the Marine-Hospital Service in aid of state and local boards of health, and in accordance with the act of April, 1878.

The public-health work, under the Secretary of the Treasury, devolved, as a matter of course, on the Marine-Hospital Service, and when, owing to the reorganization of the service, an efficient corps of sanitarians came under federal control and under the immediate direction of the Secretary of the Treasury, to whom matters relating to national quarantine or the introduction of epidemic diseases were legally referred, the expansion of the public-health duties of the service was inevitable.

Surgeon-General Woodworth devoted much attention to hospital construction, and his studies led him to prefer and recommend the pavilion style of hospital. With the crude ideas of that day on infection and the imperfect knowledge of the etiologic factors of disease, to eradicate infection from a building or ward seemed difficult, if not impracticable, without destruction of the building. He advocated pavilion hospitals built of wood, one story in height. These buildings were comparatively cheap, and could be burned when infected, after ten or fifteen years' service. This plan was economical, when we consider the knowledge and means of eradicating infection existing at that early day, but with the advance in bacteriologic knowledge and the perfection of disinfecting apparatus such radical measures became unnecessary, and the service again built its hospitals of substantial brick and stone.

During the administration of Surgeon-General Woodworth, the officers of the service investigated and reported on the hygienic conditions surrounding the sailor in his every-day life. Not content with furnishing him relief when sick or disabled, the medical officers entered the realm of preventive medicine and endeavored to improve and make sanitary the conditions responsible for many of his ailments. The annual reports of these early years are replete with interesting articles by service officers on the hygiene of the fore-

castle, and of the sailors' boarding-house, the shelter afforded boatmen on the Mississippi River boats, and other subjects bearing on the prevention of disease among sailors.

(To be continued.)

TRAVEL NOTES.

III.*

SPAIN AND RAMÓN Y CAJAL.

LEWELLYS F. BARKER, M.D.
CHICAGO

BERLIN, June 25, 1904.

If one have the time for it, the pleasant mode of approach to Europe by the southern route has much in its favor. Hard work in America is fitly separated from hard work in Austria, Germany, France or England by a few weeks of relaxation in Spain or Italy, or both.

Landing at Gibraltar, the traveler has fifteen days at his disposal before the next steamer leaves for Naples. In a fortnight it is very easily possible to visit satisfactorily Granada, Seville, Madrid and Toledo, and if the sea trip have made one particularly energetic he may also go to Cadiz and Tangiers. The Alhambra and the Generalife with the tales that cluster about them; the gay, bright, multicolored life of Seville, the superb architecture of Toledo and the magnificent art treasures of the Prado in Madrid combine to afford a very full two weeks of pleasure and instruction. The remains of Moorish palaces and mosques in Granada, Seville and Cordova, the tomb of Columbus in the Seville cathedral, the gloomy vaults in the Escorial breathing still of the sternness of Philip and the inquisitional period, quicken the historical sense and soon stimulate to reading other than one's wont. The opportunity to study Murillo and Velasquez is unparalleled; while great galleries elsewhere are proud to possess a single painting by one of these masters, in Spain they can be enjoyed by the roomful; the display seems prodigal.

For the medical traveler in Spain, however, interest centers in the personality of one great anatomic investigator, Professor Santiago Ramón y Cajal. Since 1888, publication after publication, embodying discovery after discovery in the structure of the nervous system, has appeared under his name. Beginning with the finer structure of the retina and that of the spinal cord of the embryo chick, Ramón y Cajal has worked through the whole nervous system, cerebrospinal and sympathetic, central and peripheral, lavishly enriching knowledge in every part. It was a special pleasure to me to meet the man himself and to see in his laboratory the exquisitely beautiful preparations on which his writings and the well-known illustrations accompanying them are based.

Earnest and forceful, physically strong and vigorous, at the very prime of his powers, Ramón y Cajal makes a personal impression which accords with his works. At the time of my visit he had just perfected his new method for demonstrating the neurofibrils. THE JOURNAL has dealt with the method editorially, so I need not go into the details of it here. The method is so simple and is so widely applicable that he has been able in a very short time to apply it to the examination of the most different parts of the nervous system, human and comparative, adult and embryologic. After the complicated, time-robbing methods of Apathy and Bethe, which were discouraging in use and yielded most inconstant results, it is most gratifying to be provided with this simple method which every one may use and which, together with the new method of Bielschowsky, will doubtless make the study of the neurofibrils a part of every elementary course in histology.

The simplification and improvement of methods has been no unimportant result of Cajal's genius. Thus, it was his introduction of the rapid method of application of the Golgi procedure which gave such vogue to the silver-impregnation studies; it was his modification of Ehrlichs' method of vital staining with methylene blue that gave us first the vitally-stained intracentral axones and their subdivisions, and now it is his device that permits us to make neurofibril preparations at will. And, unlike many of the investigators who have given new methods to their colleagues, Ramón y Cajal has applied his own methods in systematic sequence and with indefatigable energy to the reworking of the whole anatomy of the nervous system. His earlier publications in various anatomic journals have been succeeded by monographs on the spinal cord, on the medulla oblongata, and on various regions of the cerebral cortex, and finally he has given us an epitome of all his studies in his large work in two volumes, just completed, entitled "Textura del sistema nervioso del hombre y de los vertebrados."

The chair which Ramón y Cajal holds is in the medical faculty of the University of Madrid and is entitled "Histology, histochemistry and pathologic anatomy;" the two chairs of descriptive anatomy (including embryology) are occupied by Oláriz and Calleja. Ramón's lectures are given at the laboratory at the medical school in the Calle de Atocha, but his research work is done in a zoologic laboratory some distance away, where he is free from turmoil and interruption. To make his life as restful and undisturbed as possible, he has his house in the country in the environs of Madrid.

In view of the attacks made on the neurone doctrine by Nissl and Bethe in Germany, it was interesting to find that Ramón y Cajal not only holds firmly to the doctrine of morphologic units in the nervous system, but is as yet by no means prepared to admit the existence of organic continuity among these units; in other words, he supports the neurone doctrine as strongly as ever, and in addition, still believes in the "contact theory" which he originally suggested. His newer preparations lead him to assert more vigorously than ever the transference of impulses through a contact relation of the end feet of axones and collaterals to the cell bodies and dendrites of other neurones. And he has shown that the pericellular reticulum which Bethe described as a terminal nervous reticulum and declared to be so important as negativing the conceptions of the neuronists, is not a reticulum of nerve fibers at all. It would seem almost the irony of fate that Bethe, who was asked some years ago to write an epitome of the newer neural conceptions and postponed doing so in order to avoid being premature, should have published his book on the neurofibrils on the eve of Ramón y Cajal's new discoveries. But Bethe may console himself with the fact that every new book dealing with fields in which research is active is now out of date when it is published, and besides Bethe, by waiting and experimenting, has been able to present us with a wealth of new observations, for which every neurologist must be deeply thankful. Whatever may be the fate of the theories of the great Spanish investigator, this much is certain, that to him belongs the lion's share of positive contributions to morphologic knowledge of the nervous system in the closing decades of the nineteenth century.

(To be continued.)

* The first article in this series, "Travel as a Means of Post-Graduate Medical Education," by Dr. Nicholas Senn, appeared in THE JOURNAL, July 23, page 261; the second, "Is a Trip to Europe Worth Its Cost to the Medical Man?" by Dr. Lewellys F. Barker, July 30, page 328.

Fatal Iodism.—P. Ghiso of Buenos Ayres illustrates in the *Semana Medica*, No. 20, 1903, the serious lesions that may be induced by ingestion of potassium iodid. The subject was an Italian woman of 39, who took .8 gm. of potassium iodid on a physician's prescription given on account of edema of the feet persisting for three months. After two doses of the mixture edema and blisters developed in the face and arms, and the eruption was evidently aggravated by two more doses the next day, after which the medicine was discontinued. The eruption, however, continued a progressive fatal course with ulcerations, necrosis, delirium and death in less than three weeks. The prescription called for 2 gm. potassium iodid in 200 gm. distilled water and 20 gm. syrup. She took only four spoonfuls, but the character of the eruption, its abrupt commencement, the general syndrome, the fever and the negative bacteriologic findings all confirmed the diagnosis of an idiosyncrasy to the iodid superposed on a kidney affection.

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PHOTOTHERAPY AND SENSIBILIZATION.

The labors of Finsen and his assistants have placed phototherapy on a sound, scientific basis. The results of their interesting investigations have done much to make clear to us the reasons for the biologic and therapeutic effects of various forms of light. We know that the bactericidal and the principal other biologic actions of light are due essentially to the blue-violet and ultra-violet rays, the so-called chemical or "cold" rays, whereas the rays at the red end of the spectrum ordinarily have no such action. The chemical rays are also characterized by greater absorbability and less penetrating power than the red-yellow rays. For these two reasons their application in the services of therapy has so far been limited to certain superficial cutaneous lesions, particularly, of course, lupus. In Finsen's phototherapy, one of the essential steps is to render the part to be treated as bloodless as possible by means of pressure in order to favor the penetration of the blue-violet and ultra-violet rays, which otherwise are quickly absorbed by blood.

At present, perhaps the most important problems in light-biology concern the ways and means of rendering deeper parts accessible to active, chemical rays. The further extension of practical phototherapy depends on the degree of success with which these problems are solved. Clearly the absorption and the action of light will depend not only on the nature of the rays, but also on the qualities of the bodies and tissues exposed to light. It might well be that certain changes in animal tissues would greatly alter their behavior toward various forms of light. The sensibilization of photographic plates, discovered by Vogel in 1873, may be taken as an analogy of the possibility we have in mind. Vogel's sensibilization, which is extensively used in photography in making the so-called orthochromatic plates, consists in adding certain fluorescing pigments to the plates, which then become sensitive to red and yellow light. Among biologic phenomena resembling photographic sensibilization, we have the assimilation by plants of CO_2 under the influence of chlorophyll, also a fluorescing pigment. Experimentally, sensibilization has been studied by Tappeiner and his pupils in Munich, and by Dreyer in Finsen's institute. Tappeiner and his pupils have shown that paramecia are readily injured and killed by daylight when placed in rather dilute solutions of fluorescing pigments, which solutions act much more slowly, if at all, in darkness; that the cilia of ciliated epithelium lose their motion quickly in fluorescing solutions in light; and that sunlight causes necrosis in the ears of white mice previously injected with eosin. The principal results of Dreyer's experiments may be summarized as follows: The infusorium Nassula in dilute solution of erythrosin becomes just as sensitive for the yellow rays as the unsensitized Nassula are for the ultra-violet rays, and the same holds good for *Bacillus prodigiosus*. The tongue of frogs and the ears of rabbits injected with erythrosin show a greatly increased inflammatory reaction to light, which now penetrates much more deeply than in case of the normal tongue or ear, the general conclusion being that sensibilization renders micro-organisms and animal tissues as sensitive or even more so to the yellow and yellow and green rays as to the chemical rays. Apparently, fluorescing and other sensitizing substances have the power in some way of changing the energy of the yellow and green rays into more active (chemical?) energy; however, the mode of action of sensitizing substances has not as yet received any adequate theoretical explanation. But, naturally, the results here outlined hold in hand the hope that by the use of sensibilizators the practical application of phototherapy may become greatly extended. Busck suggests that antimalarial action of quinin, which is a fluorescing substance, may be due to light under the influence of sensibilization by the quinin.

Finally, it is of interest to note that in at least two diseases the skin becomes abnormally sensitive to light, namely, in smallpox, in which Finsen has brought forward considerable evidence to show that exclusion of red rays prevents suppuration ("negative phototherapy") and in poisoning of cattle by buckwheat. In the latter case, light causes a vesicular eruption of the unpigmented areas of the skin, an eruption that does not appear in darkness. That this action of light is due to the development of sensitizing substances, is rendered not unlikely by the fact that in buckwheat has been found a red fluorescing pigment (Busck[1]).

TYPHOID PERFORATION.

While it may be admitted that spontaneous recovery takes place after intestinal perforation in the course of typhoid fever, such an event certainly is exceedingly uncommon. On the other hand, the results of timely operation have been so successful that it is of the highest importance for the clinician to be prepared for the occurrence of the complication and to recognize it as early as possible, in order that prompt surgical intervention may be undertaken.

There is no sign or symptom that can be considered pathognomonic of intestinal perforation, and the decision in the individual case must rest largely on the diagnostic alertness and acumen of the clinician, who

1. Meddelelser fra Finsen's med. Lysinstitut, 1904, viii; see also Ibid., 1903, vii.

will at times be able to recognize the presence of perforation and peritonitis when a mere recital of the clinical phenomena might alone be unconvincing. It must, however, not be inferred that the diagnosis is easy; on the contrary, it may be, and it not rarely is, involved in the greatest uncertainty.

In a recent communication Dr. E. W. Goodall[1] presents some interesting data bearing on the causation, diagnosis and treatment of typhoid perforation, based on the records of a large fever-hospital. Among 1,921 cases of typhoid fever observed between the years 1892 and 1903, perforation occurred in 96 (4.9 per cent.), all of which terminated fatally except two, in one of which operation was performed, and in the other the nature and the course of the symptoms justified the diagnosis. The deaths from all causes among these cases numbered 304. Postmortem examination was made in only 189, including 68 of perforation. Of the 96 cases of perforation, 62 occurred in males and 34 in females; 8 occurred in children under the age of 10 years, the youngest patient being 6 years old; 7 occurred in patients over 40 years of age, the oldest patient being 63; 52 occurred in patients between 10 and 24. Of 82 cases in which the data were available, perforation occurred during the second week in 5, the earliest day being the tenth; in 64 it occurred during the third, fourth and fifth weeks; in 9 during the sixth week, in 3 during the seventh week and in 1 during the eighth week. In 13 of the last, and also in 2 in the fifth week, it occurred during a relapse. Of the 56 cases in which postmortem examination was made, sloughs were noted as still present in 41. It was observed that a large proportion of the cases in which perforation occurs are severe cases, the ulceration being extensive and deep in the large majority of those submitted to postmortem examination. Of all of the cases of perforation, hemorrhage occurred as an antecedent condition in 20. The opinion is expressed, on the basis of both clinical and pathologic observation, that by far the most common cause of perforation is the mere extension of the necrotic process to the peritoneal coat of the bowel, although other factors, such as errors in diet, unsuitable purges, straining at stool, sudden and violent or careless movement on the part of the patient and distention of the bowel may be contributory causes.

The symptom most constantly observed was pain in the abdomen, and this was almost always sudden, and frequently severe, although in 20 of the 96 cases the initial pain was slight. The pain was most commonly situated in the lower part of the abdomen, especially in the right iliac region. Not rarely the patient was unable to localize the pain, and not infrequently it was referred to the epigastric region or even to the lower part of the chest. In two cases there was in addition pain at the extremity of the penis. In addition to pain, other symptoms, local or constitutional, will be present. Among the former, which are of the greater importance, are tenderness, sometimes exquisite, most often in the right iliac region; rigidity, either in the same situation or more diffuse; distention or retraction of the abdomen. Obliteration of the liver-dulness may be observed early, but as a rule it occurs several hours after the perforation. Of the constitutional symptoms, shivering is one of the most important, and it may be of varying degree of severity up to a prolonged rigor. It often occurs at the time of perforation or within an hour or two, although it may precede the appearance of pain and other signs by several hours. Among other initial symptoms, the following are of significance, but of lesser frequency than those already mentioned: Vomiting, collapse, change of color of the face to gray or cyanotic, an anxious expression, the passage of two or three loose stools when the bowels have been sluggish or constipated, and increase in pulse rate. A marked decline in temperature immediately following the perforation is exceptional, although it is not uncommon a day or two later, and it is believed to be usually an indication of collapse or of the onset of peritonitis. Of the 68 cases in which postmortem examination was made, the perforation was found in the small intestine in 59, in the large intestine in 3, in the vermiform appendix in 3, in the gall-bladder in 2, while in 1 a suppurating gland had ruptured into the peritoneal cavity.

Dr. Goodall is not indecisive on the question of treatment, for he holds that when perforation is diagnosed there is only one course to be followed, namely, abdominal section, usually with suture of the perforated intestine. The essential points in this connection are early operation and its rapid performance.

[1] Lancet, July 2, 1904, p. 9.

INFECTION IN CHILDREN.

Very few people seem to realize how much more dangerous, as regards possible infection, is the usual position of the child in the house than that of any other member of the family. The little one creeps about the floor getting its hands soiled with the accumulation of material that has been carried in from the street, unable to protect itself by reason or experience, and consequently likely to handle all sorts of offensive material if any opportunity should arise; and beside living for many hours in the day so close to the floor that every little eddy of air, every little draft that blows from open doors or windows, and every movement of any kind in the room causes the lifting of dust which is usually carried only just high enough to be inhaled by the child or to cover its clothing and thence be removed by its active little hands and carried to its mouth in various ways. It is no wonder that children are subject to infections much more than others, and the surprise often is that they resist so well as they do the opportunities for infection that must be so constantly present.

During the crusade against tuberculosis, we have heard much of the reduction of the death rate by proper care with regard to cleanliness, and especially as regards the absolute prevention of expectorated material finding

its way to floors or areas lest after drying it might be blown up as dust again. It must not be forgotten that the precautions in this matter are much more necessary for the protection of children even than of adults. Most physicians no longer believe, and the notion is gradually spreading in non-medical minds, that tuberculosis is ever directly hereditary, but that it is always acquired. The original acquisition of the disease is much more frequent in childhood than has usually been considered, and the explanation is easy when we thus recall the conditions surrounding child life.

We hear much at the present time of a predisposition to tuberculosis, said to exist in certain families in which formerly it was said that tuberculosis was hereditary. The members of these families are supposed to be much less able to resist invasion by tubercle bacilli than other normal individuals. There are many physicians who are beginning to doubt even the existence of this special predisposition, and consider that it is rather a general run-down state of system that facilitates the successful invasion of tubercle bacilli. One large insurance company in New York has formulated the opinion that it is less likely to suffer loss from the acceptance of risks on the lives of individuals who are twenty pounds under the normal weight for height that everyone should have, than on the lives of those who have a distinct family history of tuberculosis, but who are in good health, up to normal weight, and are not living with their tuberculous relatives. With these considerations in mind, there are many physicians at the present time who believe that this so-called tendency or predisposition to tuberculosis is really the result of an early infection with the disease which has been for the moment cured, but which leaves the subject much more likely to suffer from tuberculous processes later on in life. In a household where there are children and where some member of the family is tuberculous, unless the greatest possible care is exercised, infectious material will almost surely find its way in abundance to the floor, even though expectorations should be cared for very carefully and expectorated material always burned. Beside expectoration, there is the tuberculous material which is coughed out as spray during paroxysms of coughing, and then the tubercle bacilli that are projected from the mouth during talking. These materials sink to the floor, where they are almost sure sooner or later to be caught up on the child's clothing or on its hands, and so readily become a source of infection. This may be the real origin of the supposed predisposition to tuberculosis that exists in families, and not any inevitable hereditary tendency. This thought is extremely encouraging, since it makes the problem of the avoidance and the cure of consumption much more possible of solution. Hereditary qualities can not be avoided, but infection can, though very careful precautions may be necessary for this purpose.

These considerations, however, make it clear what great care must be exercised to prevent possible contamination of the floors over which children are allowed to play. The nursery should, as a rule, be without carpet, of smooth, well-matched boards without cracks to gather dust and dirt, and so that it can be thoroughly cleansed. It must not be the custom for members of the family to rush straight from the house door into the nursery, carrying on their shoes and on their long-trained dresses dirt of various kinds from the street that may prove infectious for the child. As a rule, house dresses and shoes should be worn almost exclusively in the nursery, and it would be better to take children out of the room to see visitors rather than for visitors to go in to see them. The nursery, more than any other room in the house, needs to be scrubbed very thoroughly and very frequently. Cleanliness must be the watchword of it. It is very probable that in this way many of the diseases that are now carried to the children can be prevented.

ENDOTOXINS.

In current bacteriologic literature, a distinction is commonly made between the so-called extracellular toxins and the intracellular or endotoxins. The former designation is given to those toxins that are found in the culture medium in which the specific bacillus is growing. The diphtheria and tetanus toxins are familiar examples of this class, and together with these is reckoned the toxin of *B. botulinus*, and also, according to the recent researches of Grassberger and Schattenfroh, the toxin formed by the bacillus of symptomatic anthrax. These "true toxins," as they are sometimes called, can be readily obtained in germ-free solution by simple filtration of suitable fluid cultures. It has not yet been shown, however, that the great majority of pathogenic bacteria generate toxins separable by filtration from the cells that produce them, and in the case of some of the longest known and best studied microorganisms the demonstration of any specific toxin has not been forthcoming. It has been conjectured in these cases, as, for example, in the typhoid bacillus and cholera spirillum, that the specific toxic substance responsible for the symptom-complex and specific lesions is firmly bound to the cell protoplasm, and does not diffuse through the cell wall during life. Disintegration of the cell, from death or other cause, is conceived to liberate the endotoxin which then displays its specific effect. The occurrence of the alcohol-producing enzyme zymase in the living yeast cell is on this supposition regarded as presenting a close analogy to the hypothetical endotoxins, since, as is well known, zymase is not found in the medium in which the yeast cell is growing, and was first extracted from the living cell by Buchner through the use of very high pressures.

On the assumption that endotoxins exist, many attempts have been made to procure these bodies by manipulation of large masses of the specific cells. The application of high pressure, the trituration of frozen bacilli and the utilization of autolysis have all been practiced with the aim of obtaining these toxic bodies,

presumably so firmly anchored to the living protoplasm. In some cases, investigators have reported finding bodies of more or less marked toxicity. These endeavors, however, have been singularly unsuccessful, so far as the securing of any toxic substance at all comparable in potency and physiologic characteristics with the extracellular toxins. The opinion, in consequence, has been steadily gaining ground that the existence of endotoxins is more or less mythical. The view that the specific toxic bodies, by means of which the typhoid bacillus and many other microbes produce their injurious effects are to be regarded as secretion products generated during growth in the animal body, but not formed in ordinary culture media, has been emphasized especially by Welch in his notable Huxley Lecture.

Meanwhile, arguments continue to be urged against the endotoxin hypothesis. A recent paper from Brieger's laboratory[1] clearly sets forth the unsatisfactory nature of the evidence relating to the alleged extraction of endotoxins. Repetition of the ingenious experiments of Macfadyen and Rowland have led to substantially negative results. The trituration of frozen typhoid bacilli, followed by careful tests of the products, has not resulted in securing specific toxic bodies of a character at all corresponding with the toxicologic requirements. The authors of this research are forced to the conclusion that the true typhoid toxin does not remain fastened to the body substance during the life of the organism, but passes out into the surrounding medium like the toxins in tetanus and diphtheria. The failure to discover these toxins by ordinary procedures simply illustrates the inadequacy of our routine culture media. In other words, the human body presents to the typhoid bacillus a more favorable medium for the secretion of its specific toxin than does beef broth, while the less fastidious diphtheria bacillus is able to produce its toxin in both situations alike.

1. Bassenge and Mayer: Centralbl. f. Bakt., 1904, vol. xxxvi, p. 322.

REPRINTS OF ATLANTIC CITY PROCEEDINGS.

The American Medical Association Press has issued a pamphlet[2] containing the "Proceedings of the Fifty-fifth Annual Session of the A. M. A.," and including the minutes of the House of Delegates, of the General Meetings, and of each of the Sections, and the list of members registered by Sections. This is all taken from THE JOURNAL, June 11 and 18 and July 2, 1904, and is reprinted with a cover for convenience of reference by committees, officers and all interested in the official proceedings.

2. Forty pages, JOURNAL size, sent postpaid for 10 cents per copy.

MEDICAL MEETINGS ON THE PACIFIC COAST.

The American Medical Association's 1905 session at Portland, Oregon, is to be preceded—as a western coast medical convention—by that of the Canadian Medical Association at Vancouver, B. C., August 23 to 26, 1904. For the latter event a round trip rate is announced from Toronto of $62.40; from Chicago, $61.00; St. Paul, $50.00, and tickets will be good going out over the Canadian Pacific and to return inside of sixty days over the Northern Pacific, Great Northern or the Union Pacific. A good program has been arranged, as well as many pleasant excursions and side trips. The sixty-day limit of the ticket and the provision for return by one of several routes suggest some interesting features that may be arranged for the Portland Session of the American Medical Association in 1905. It would have been a very interesting occurrence if the Canadian Medical Association and the American Medical Association had met in nearby cities on the coast at the same time. These two meetings in successive years will turn the attention of the medical profession very strongly toward this part of North America. Many who make the trip will be astonished at the development of the country through which they pass. That they will be delighted with the scenery does not need to be said. One Portland physician, writing enthusiastically of the Portland Session, says: "Laying aside patriotism and exaggeration, there is as beautiful scenery to be seen within sixty miles of Portland as exists on either side of the Atlantic."

THE LEISHMAN-DONOVAN BLOOD PARASITES.

A little over a year ago Major Leishman of the British Army published an account of a parasite which he found in the spleen pulp of a patient who had died from a febrile condition resembling malaria. He regarded this parasite as representing most probably a degenerate trypanosome, but Captain Donovan, who later found the same thing, and experts on tropical diseases such as Ross and Laveran, believe the parasite to be of a new species. In view of the fact that parts of this country are semi-tropical, and considering that even if it is not found in this country, it almost certainly will be in the Philippines or in Panama, a fuller knowledge of the parasite and the symptoms produced by it seems desirable. Since the original work on the subject, which MacFarland[1] has well summarized, reports have come in from Rogers, Manson and Low, and Neale,[2] which add to our knowledge of the subject. The parasite has so far not been found in the blood, and in order to procure it it is necessary to puncture the spleen; as in most cases the course of the disease is chronic and the spleen capsule presumably thickened this would seem to be reasonably safe, at any rate no deaths are reported from it so far. The parasites have been generally described as extra-corpuscular, though Laveran seems to think that they are often intra-corpuscular. The bodies are oval in shape, and vary in size from those two microns or less in diameter to those one-half the diameter of a red blood corpuscle. In smears taken after death the bodies occur singly as a rule, but in smears from the living subject groups of from two to a dozen parasites are seen embedded in a sort of matrix. With the eosin-methylene blue stains the parasites are seen to contain nuclear substance usually in the form of a chromatin ring to which a rod-shaped mass of chromatin is applied. At autopsy the bodies are found not only in the spleen, but also in the liver, bone marrow

1. American Medicine, June 4, 1904.
2. British Medical Journal, May 28, 1904.

and mesenteric glands. The symptoms which are produced by these parasites vary to some extent, but resemble more or less those of cases which in India are classed as chronic malarial cachexia. Leishman classed many of his cases as dumdum fever because they developed in dumdum, and because malarial parasites could not be found in their blood. The disease known in certain parts of Assam as ala-azar is probably due to these parasites. According to Rogers, the important symptoms of the disease are a large spleen, cachexia, anemia, and fever at times. The cases which he saw had lasted all the way from one month to two years, so that a good deal of variation in the clinical history is to be expected. According to Manson and Low, who seem to have come across more virulent cases than Rogers, the subjects of this disease usually die in a few months. There seems to be little doubt from the descriptions of the parasite that it is a new one. It has, however, been suggested by Donovan that we might be dealing with a resting stage of the malarial parasite, but he has now abandoned this view. The parasite has now been found in Africa by Neave, and as we have already said, will almost certainly be found in our own tropical dependencies.

THE PNEUMONIA COMMISSION.

Evidence that pneumonia is coming to be appreciated as one of the most serious scourges of humanity is afforded by the recent proposition of the New York health department to appoint a commission, including some of the best known internists of the country, to investigate the causes of this increased mortality. Since THE JOURNAL first called attention to the facts, some four years ago, the data then available have been vastly enlarged by more recent statistics and their deductions amply confirmed. After the question of the prevention of tuberculosis, and perhaps not yielding to that in importance, there is hardly any more important problem than this before the profession. How much of the increase of pneumonia mortality of late years is due to the grip infection, which still lingers with us, is worthy of serious study. Statistics, however, indicate that increase can not be altogether attributed to this cause. The mortality from the disease had been increasing even before the general grip invasion. The subject is a complex one, involving not only bacteriologic, but also social, climatic and other factors. Why this disease should be so fatal in some sections and so comparatively unimportant in others, is a matter that deserves thorough investigation. We trust the commission (the appointment of its members is noted in our news columns) will be granted ample means and facilities for the research. There is as much need for a special investigation of pneumonia at the present time as there is for that of cancer, and possibly better prospects of results.

Medical News.

ILLINOIS.

Hospital Burned.—The Mount Vernon Hospital was destroyed by fire, July 22, causing a loss of about $8,000, partially covered by insurance of $5,000. The patients were removed without casualty.

Cancer Curer Acquitted.—"Dr." Hattie Cain, Lewistown, who has a salve for cancer, and was arraigned a short time ago for violation of the medical practice act, has been acquitted.

Personal.—Dr. Charles H. Mills, Champaign, who was 81 years old on July 23, has been in active practice for 55 years. ——Dr. Louis H. Clampit, Jacksonville, has been made physician-in-charge of the south annex of the Illinois Central Hospital for the Insane, and Dr. Herbert A. Potts has been appointed assistant physician in his stead.——Dr. George T. Kemp, professor of physiology at the University of Illinois, Urbana, leaves this month for Europe.——Dr. Sarah H. Brayton, Evanston, left for Europe July 20. She expects to spend several years in study abroad.

Chicago.

Personal.—Dr. Clarence L. Wheaton has returned from Colorado and resumed practice in Chicago.——Dr. Louis J. Pritzker sails for Liverpool on the *Carpathia*, August 9, and will remain abroad about a year.

Sanitarium Gives Hospital Accommodation.—The Sisters of St. Anne have completely isolated one wing of their sanitarium for consumptives at Forty-ninth and Thomas Streets; have fitted up an operating room and dressing rooms, and are now taking general medical and surgical cases. The hospital building was erected only a few months ago, and is equipped with all modern appliances.

A Low Death Rate.—For the week ended July 30, 450 deaths were reported, 88 less than for the previous week, and 56 less than for the corresponding week of last year. The mortality was at the rate of 12.17 per 1,000 per annum. Acute intestinal diseases heads the list of death causes with 96; violence comes next with 45; then follow consumption, with 37; heart diseases, with 34, and Bright's disease and pneumonia, with 31 each.

Lower Child Mortality.—The Department of Health, in its current Bulletin, claims that Chicago is the most healthful large city on earth. The proportion of deaths of children under five to the total mortality has decreased in the last ten years from 46.1 per cent. in 1894 to 28.6 per cent. in 1903, and this last despite the Iroquois Theater fire losses. For the first six months of 1904, the percentage was 24.01, or 47.9 per cent. lower than in 1894.

MARYLAND.

Baltimore.

Personal.—Major Seth S. Ullrich, surgeon of the Fourth Regiment, M. N. G., has resigned.——Dr. Arthur M. Shipley has been appointed medical superintendent of the University of Maryland Hospital.——Dr. Bertha D. Berger has been elected resident physician-in-charge of the Good Samaritan Hospital. ——Dr. Arthur Mansfield has established a sanatorium at Owings' Mills, Baltimore County.

Births and Deaths.—The neglect of physicians to report births was shown last week in the discrepancy between deaths and births, 238 of the former and only 177 of the latter being reported. The white and colored death rates per 1,000 were respectively 21.05 and 39.76. There were 61 deaths from cholera infantum. No case of smallpox was reported. Typhoid fever is on the increase, there being 32 cases reported, with 6 deaths.

Where They Spend Vacations.—Drs. Cary B. Gamble and Charles S. Hoffman are at Atlantic City.——Dr. George B. Reuling is at Narragansett Pier.——Dr. Arminius C. Pole is at Eagle's Mere, Pa.——Dr. Nathan R. Gower is at Carlsbad.—— Dr. Bessie B. Bennett is at Timonium.——Dr. Harry M. Arthur is at Brigantine, N. J.——Dr. Hector H. Goodman is at Asbury Park.——Dr. John I. Middleton is at Narragansett Pier.——Dr. J. Hall Pleasants is at Buena Vista Springs.——Dr. Charles M. Franklin is visiting in Michigan.

MASSACHUSETTS.

Burrage Hospital.—This free institution, located at the top of the hill on Bumkin Island, is now open for the summer. While the institution was founded to care for crippled and deformed children it will receive children afflicted with any noncontagious disease.

Personal.—Dr. Frank E. Stone has been appointed city physician of Lynn.——Dr. Herbert C. Emerson, Springfield, has been nominated as associate medical examiner for the Second Hampden district, vice Dr. Everett A. Bates, made medical examiner. ——Dr. Myer Schwartz has been appointed physician in charge of smallpox cases by the Lawrence board of health.——Dr. Frederick B. Sweet has been elected surgeon to the Springfield

Hospital, vice Dr. **Theodore F. Breck, deceased.**——Dr. Albert M. Belden, Northampton, has been chosen chairman of the board of supervisors of the Massachusetts Medical Society.

Boston.

Guilty of Manslaughter.—Dr. Charles A. Eastman, Boston, charged with causing the death of Edith McIntyre of Boothbay Harbor, Me., by a criminal operation, was found guilty of manslaughter July 13. Bail was fixed at $5,000.

Bequests.—Mrs. Henry Whitman, in her will, made the following bequests to Boston charities: Children's Hospital, $10,000 to endow two beds known as the "Lily" beds; Home for Incurables, $5,000; Massachusetts Infant Asylum, $5,000, and Society for Crippled and Deformed Children, $20,000.

The New England Convalescent Rest Home is to be established in Waltham. A large estate has been secured on Beacon Street, the houses on which will be remodeled, to accommodate 150 patients. It will be for the relief of patients discharged from hospitals during convalscence, and will have an endowment of $100,000.

Cares for Many Sick.—During 1903, Boston cared for 14,281 sick people, 11,693 being acute cases and 2,588 brain diseases, i. e., insane. Beside these, more than 50,000 received medical aid at the City Hospital out-patient department and fully 300,000 at the other hospitals and dispensaries of the city. About 10,000 residents of Boston occupied free beds in private hospitals during the year. These figures, gathered by the "statistics department" of the city indicate that more than one-half of the population sought and obtained free medical or surgical aid in 1903.

Fresh Air and Low Death Rate.—Boston has been experiencing an unusually low death rate so far this summer, especially among young children. This is attributed by the board of health to the large opportunities furnished by the philanthropists of the city to poor children to get fresh air in picnics, excursions, and the like. Another large factor is the Boston Floating Hospital, where 57 cribs are kept constantly full, and which daily carries out from 50 to 75 other sick babies for a day on salt water. The demand for the aid of this hospital has been greater than ever before, often 10 or 12 babies being refused in a day because there are no vacant beds. Vigorous efforts are being made to secure a new and larger boat for next season.

Health Boards Meet.—The Massachusetts Association of Boards of Health met at Gallups Island, Boston Harbor, July 28. The paper was read by Prof. Theobald Smith on "The Etiology of Leprosy," the subject being illustrated by a Chinaman, who is now isolated at the quarantine station on the island, and which presents a series of nodules in which the bacillus of leprosy has been demonstrated. The Boston Board of Health took the members of the association down the harbor on the steamer *Vigilant*, and provided a shore dinner. On the preceding morning many of the members inspected the state laboratories at Forest Hills, where diphtheria antitoxin is produced and where they are almost ready to issue the supply of free vaccine virus provided for by the last legislature, all of which is under the personal supervision of Professor Smith.

MISSOURI.

Fewer Die; More Are Born.—The deaths in St. Louis for the week ended July 30 were 200, or 27 less than for the previous week. Consumption caused 29 deaths; heart disease, 22; violence, 12, and gastro-intestinal diseases, 45. During the week 297 births were reported.

Addition to Sanitarium.—Dr. John Punton, superintendent of the Punton Sanitarium for Nervous Invalids, Kansas City, is erecting a large addition to the institution, and is also making an extensive enlargement of the verandahs, which are used for places of rest and recreation.

NEW JERSEY.

Fourth of July Tetanus.—The first fatal case of Fourth of July tetanus was reported from the Cooper Hospital, Camden, July 18. The tetanus resulted from an injury inflicted by a blank cartridge July 4. Antitoxin was freely used, without avail.

Anti-Spitting Crusade.—The State Board of Health has begun a crusade on all the railroads of the state against expectoration. The Pennsylvania System has arranged to have warning signs placed in all its passenger coaches.

Personal.—Dr. Peter B. Davenport has been reappointed health officer of Vailsburg.——Dr. Byron C. Pennington, Atlantic City, is seriously ill from overwork.——Dr. Alexander Marcy, Jr., has been appointed health officer of Riverton; Dr. William S. Green of Paterson; Dr. Walter Taylor of Jersey City, and Dr. P. H. Obert of Asbury Park.

Jersey's Proposed Sewer.—The proposed New Jersey sewer is to take in all the towns and cities within a radius of twenty miles around Jersey City and will empty 3,260,000,000 gallons of sewage into upper New York Bay every twenty-four hours. The bill has been sustained as constitutional by the Supreme Court of New Jersey, but it has been under the consideration of a commission, appointed by Governor Odell, with Dr. Daniel Lewis as chairman, which will oppose it vigorously. It is the opinion of the commission that this amount of sewage would menace the health, not only of New York City, but of the towns along the Hudson River for many miles, as the waters of the bay and river are carrying all the sewage they ought to, and no new sewers should be constructed without apparatus for its sanitary treatment. The commission will recommend the creation of a permanent interstate sewerage commission covering the metropolitan districts of New York and the nearby cities of New Jersey.

NEW YORK.

Contagious Diseases at Mission.—There was a small outbreak of measles at the fresh air missions at Angola. Many of the children sent there for an outing are found by the inspectors to have pediculi and scabies.

Bovine Tuberculosis.—State Veterinarian Kelly of Albany and State Appraiser Fulton of Whitesboro are going through St. Lawrence County disposing of cattle that have been tested by tuberculin and condemned. In the towns of Norfolk, Harrisville and Stockholm fourteen cows are to be killed. No new cases of anthrax are reported.

Would Establish Hospital.—William D. Palmer, Mamaroneck, in his will set aside $20,000, the income of which was to be used for the support of his wife, and on her decease the principal was to be paid to a corporate body to erect and maintain a hospital for Mamaroneck and Larchmont, to be known as the Palmer Hospital.

Flatbush Insane Asylum Lease.—The building of this institution was leased to the state in 1895 by a special act of legislature. The city officials now express the opinion that there is no official or board of the city government that has the right to renew the lease, and that such a right would have to be granted by the legislature. A long lease is desired in order that the state can afford to make much needed improvements in the building; but as King's County needs the building for an almshouse the probabilities of a long lease are not promising.

Albany Medical Faculty Changes.—Dr. Richard M. Pearce has been made professor of pathology and bacteriology; Dr. Harry J. Lipes, clinical assistant in obstetrics; Dr. Spencer L. Dawes, adjunct professor of materia medica; Dr. Charles K. Winne, Jr., instructor in bacteriology; Dr. Edwin F. Sibley, instructor in clinical microscopy; Dr. George G. Lempe, instructor in anatomy; Dr. Howard E. Lomax, assistant demonstrator of anatomy; Dr. Donald Boyd, demonstrator of anatomy of the nervous system and assistant professor of histology; Dr. Silas S. Filkins, professor of anatomy; Dr. Edwin McD. Stanton, lecturer on histology, and Dr. Wilfred S. Hale, lecturer on anatomy and assistant curator of the museum.

Buffalo.

New Hospital Under Way.—Work has begun on the new $50,000 quarantine hospital.

Deaths from Tetanus.—Two deaths from tetanus have recently occurred at the German Hospital. One followed a crushed foot and the other a wound from a rusty nail.

The New Mercy Hospital, conducted by Sisters of Charity, will soon be opened for the reception of patients. It is situated near the steel plant. The staff of physicians has as yet not been announced.

Personal.—Drs. Irving W. Potter and Edmond E. Blaauw have gone to Europe.——Dr. Harry Mead has returned from a month's visit in Pennsylvania.——Dr. William G. Bissell has returned from five weeks' duty at the National Guard Camp at Peekskill, N. Y.

The Typhoid Epidemic.—The report of the water expert, George W. Fuller of New York City, was submitted to the board of aldermen. It contains much detailed information about the condition of Buffalo's drinking waters, the sources of its pollution and the extent to which typhoid fever has been prevalent in Buffalo during the past ten years in comparison

with other cities, the enormous waste of water in Buffalo and the need of a filtration plant in Buffalo and the best location from which to draw our water supply. His findings are thus summarized:

I find that the typhoid fever epidemic in Buffalo between September, 1902, and April, 1903, was caused largely by pollution of the public water supply. This pollution came from Smokes Creek, and later from Buffalo River also, and was carried to the intake at times of high winds by the under currents which these winds from up the lake develop near and below the mouth of Buffalo River.

For the last year the city water supply has been of about the same quality as during the period from 1894 to 1902. Ordinarily it is of good quality, but it is occasionally polluted by Buffalo sewage in the manner just stated.

The water of the lower end of Lake Erie, above the effects of the sewage of Buffalo and its suburbs, I find to be safe for domestic use, and a satisfactory one in every way except for its occasional turbidity.

On the eastern side of the Horseshoe reef, in the vicinity of the so-called dummy light, and in what is generally called the Emerald channel, it is perfectly possible, under existing conditions, to obtain as good water as there is in the southern end of Lake Erie. I advise that an intake be established to draw the future water supply from this immediate vicinity.

Ultimately it will be necessary for Buffalo to filter its water supply from this or any other available source. With this end in view I advise that all improvements in the waterworks from this time on be made in strict accordance with the requirements of future filtration works, some of the features of which are herein outlined.

One of the first steps toward filtration is a reduction in the enormous waste of water in Buffalo, and I advise that this matter receive immediate attention.

New York City.

Receiving Hospitals in Parks.—To give immediate aid to the injured and overcome the long delays attending the arrival of medical aid from hospitals, Park Commissioner Schmitt of the Bronx has established ten hospitals at Pelham, Van Courtlandt, Croton and Bronx Parks.

Contagious Diseases.—For the week ended July 23 there were reported to the sanitary bureau 299 cases of tuberculosis, with 168 deaths; 275 cases of diphtheria, with 25 deaths; 201 cases of measles, with 7 deaths; 88 cases of scarlet fever, with 3 deaths; 65 cases of typhoid fever, with 13 deaths; 29 cases of varicella, with 1 death; 2 cases of smallpox, and 22 deaths from cerebrospinal meningitis.

For Pure Milk.—The health department is throwing large quantities of milk into the streets because the temperature, when examined by the inspectors, is above 50 degrees. As much as 3,000 cans have been spilled in a single night, and recently a whole train load was condemned on its arrival in the city. The milk dealers are complaining greatly because they have been at times unable to supply their customers. Such rigid procedures are being carried on in order to lessen the number of cases of cholera infantum.

Personal.—Dr. and Mrs. L. C. Baldwin sailed on the *Kaiser Friedrich der Grosse*, for Bremen, July 27.——Dr. Henry J. Prentiss, professor of practical anatomy, University and Bellevue Hospital Medical College, has accepted the chair of anatomy at the University of Iowa, made vacant by the death of Dr. J. W. Harriman.——Dr. Archibald Murray, Brooklyn, sailed for Europe July 16.——Dr. Joshua M. Van Cott, Brooklyn, has gone abroad.——Dr. Walter B. Chase has been appointed visiting physician to the Bethany Deaconess' Home and Hospital, Brooklyn.

The Mosquito War.—Health Officer Doty has begun a series of experiments in mosquito warfare. He is attacking the meadows and pools of a portion of Staten Island with "Bordeaux," a solution composed mainly of sulphate of copper and lime. This mixture has proved successful on a small scale, and they are endeavoring to prove its efficacy on a larger one. Dr. Darlington is endeavoring to abate the mosquito plague at Coney Island. The sunken meadows here are too extensive to be filled in, but the work of draining the ponds will be carried on as expeditiously as possible.

Board to Inquire Into Pneumonia.—The board selected to investigate into the causes and general nature of pneumonia is made up as follows: Drs. William Osler and William Welch of Johns Hopkins University; Dr. Edward G. Janeway, New York University; Dr. T. Mitchell Pruden and L. Emmet Holt of the College of Physicians and Surgeons; Dr. Frank Billings, dean of Rush Medical College, Chicago; Dr. John H. Musser of the Medical College of the University of Pennsylvania, and Dr. Theobald Smith, professor of pathology, Harvard University. New York City has appropriated $10,000 for this work.

Tuberculosis Crusade.—The National Association for the Study and Prevention of Tuberculosis, which was organized at Atlantic City, June 6, has secured offices in the Associated Charities Building. There is no idea of founding any sanitarium or hospital. The work planned is the collection and dissemination of information of any sort pertaining to the disease. The first definite enterprise will be the publication of a tuberculosis directory, which will be done in co-operation with the Charities Organization Society, which has much statistical information, including 125 hospitals and sanitaria in this country and Canada.

Registration of Births.—A letter from the health department of this city has been sent to all physicians calling attention to their moral and legal responsibility relative to the registration of births and stating that the failure to comply with this law is attended with serious consequences to the child, as on the birth record depends the admission of the child to the public schools and his ability to obtain employment on arriving at the age of fourteen, provided he has no other certificates, such as baptism, confirmation, circumcision, etc. The failure to comply with the law in this respect renders the physician liable to a fine of $100, recoverable by the board of health.

PENNSYLVANIA.

Gone Abroad.—Dr. Gilbert D. Murray, Scranton, sailed for England July 18.——Dr. and Mrs. Charles E. Ziegler, Pittsburg, sailed for Germany, July 2.

National Guard Appointments.—The governor has promoted Lieut.-Col. Joseph K. Weaver, Norristown, from division surgeon, to surgeon general, with the rank of colonel; Major George H. Halberstadt, Pottsville, surgeon of the third brigade; Dr. Jonathan C. Biddle, Ashland, assistant surgeon, assigned to the Eighth Infantry, and Dr. Lewis Hames Crothers, Chester, first lieutenant and assistant surgeon, assigned to the Sixth Infantry.

To Prison.—Dr. Albert A. Appel, Germantown, convicted of performing an illegal operation on Minnie Ellis, has been sentenced to imprisonment for two years in the Eastern Penitentiary.——"Dr." David Mosier, Philadelphia, for a similar offense, was sentenced to imprisonment for two and one-half years in the county prison.——Dr. Nathan Penrose, Allegheny, found guilty of criminal malpractice, has been sentenced to imprisonment for three years in the Western Penitentiary.

Personal.—Dr. B. A. Frye, Sharpsville, has been elected resident physician of the Shenango Valley Hospital, New Castle.——Dr. Reed Burns, Scranton, has been made chief of staff of the Lackawanna Hospital, vice Dr. Alexander J. Connell, resigned.——Dr. Addison W. Smith has been made a member of the staff of the Lackawanna Hospital, Scranton, vice Dr. William G. Fulton, resigned, to become a trustee of the institution.——Drs. Ebur F. Stevenson, Independence, Iowa, and Alden B. MacDonald, Sugar Grove, have been made resident physicians at the Reading Hospital.——Dr. Jacob L. Ziegler, Mount Joy, who has practiced medicine in that place for sixty years, is said to be the oldest living alumnus of Jefferson Medical College.——Drs. Gustaf Hartmann and E. Carl Weirick have secured appointments as resident physicians of the Harrisburg Hospital.

Philadelphia.

Health Report.—The health of the city has never been better; no case of smallpox has been reported for two weeks, and all the patients at the municipal hospital are to be discharged this week. Typhoid fever continued to diminish; this is said to be due to the increased supply of filtered water. The total number of deaths for the week was 434, compared with 482 for last week; this is less than for any corresponding midsummer week for years.

Bequests.—By the will of Marie L. Gage, the following institutions have been benefited: Women's Hospital, $5,000, to be applied as a memorial bed to Mary M. G. Coane; Presbyterian Hospital $5,000, for a memorial bed to Rev. Horatia M. Burton; Children's Country Week Association, $3,000; Camden Home for Friendless Children, $3,000; Philadelphia Home for Incurables, $1,000; Southern Home for Destitute Children, $500; and Northern Home for Friendless Children, $2,500.

Beri-Beri at City Port.—The ship *Foohng Suey*, which left Hawaii, March 25, arrived at the Breakwater, this week with 13 cases of well-developed beri-beri. During the voyage only one seaman developed symptoms of the disease, but by the time the vessel reached here 13 of the crew were attackd. One seaman died from the disease during the voyage. The sick men were removed to the quarantine hospital, and the ship was thoroughly fumigated before proceeding to the city port.

SOUTH DAKOTA.

State Hospital Open.—On July 1 the new building of the Northern Hospital for the Insane, Redfield, was opened to receive patients.

Convicted of Illegal Practice.—Dr. Herman A. Drechsler, Deadwood, on June 20, was found guilty of practicing medicine without a license, and sentence will be pronounced September 10. This conviction has demonstrated the legality of the new medical practice act.

State Society Meeting.—The twenty-third annual session of the South Dakota State Medical Association was held at Redfield, June 1 and 2. The following officers were elected: President Dr. Charles B. Mallery, Aberdeen; vice-presidents, Drs. Adelbert H. Bowman, Deadwood and William H. Lane, Miller, and secretary-treasurer, Dr. William Edwards, Bowdle. The next meeting will be held at Deadwood in May, 1905.

TENNESSEE.

Abortionist Sentenced.—Dr. James S. Ramsey, Huntington, was sentenced to six months in the county jail for having performed a criminal operation on a young girl of Hollow Rock.

Smallpox.—There are 4 cases at Lyell Station, Hickman County.——Three new cases developed at Carthage.——For the first time in eight months Memphis is free from the disease.

Confederate Surgeons Meet.—The Association of Medical Officers of the Confederate Army and Navy met at Nashville June 15 and 16. The president, Dr. John R. Gildersleeve, Tazewell, Va., delivered his annual address, which recited the work done at the Confederate Hospital, Richmond. The following officers were elected: President, Dr. John S. Cain, Nashville; vice-presidents, Drs. James D. Plunket, Nashville, D. H. Key, Monroe, La., William U. Martin, Kingston, Ky., and Peter B. Bocat, Florence, S. C.

Personal.—Dr. William Litterer, Nashville, has succeeded Dr. Louis Leroy as professor of histology, pathology and bacteriology in Vanderbilt University Medical Department.——Dr. Eugene E. Hunter, Elizabethton, has been reappointed a member of the State Board of Medical Examiners.——The resignation of Dr. John P. Douglass, as superintendent of the Western Hospital for the Insane, became effective June 21. He will practice in Arlington.——Dr. Joseph P. Gillen, South Pittsburg, was painfully injured by being dragged by a horse on his farm July 16.

TEXAS.

Acquitted.—Dr. R. B. Barnes, a colored physician of Cleburne, has been acquitted of the charge of illegal operation on a woman.

National Guard Appointments.—Dr. Edward N. Shaw, Cameron, has been commissioned major and surgeon, and Dr. Edmund S. Ferguson, Cameron, assistant surgeon in the Texas National Guard.

Commencement.—The medical department of the University of Texas, Galveston, graduated a class of 23 May 31. Dr. Seth M. Morris delivered the faculty address, and President W. L. Prather conferred the degrees.

Baptist Staff.—Drs. Jesse B. Titterington, Robert S. Yancey, William M. Young, Miles J. Duncan, Henry K. Leake and Horace C. Hall have been nominated as members of the staff of the Texas Baptist Memorial Sanitarium, Dallas.

Urges Cleaning Up.—State Health Officer Tabor is redoubling his efforts to prevent a recurrence of yellow fever, and to that end is again mailing out notices over the state for everybody to clean up and drain all pools, etc., in order that the mosquito be destroyed. His paper and letter of warning that cleanliness and mosquito destruction is imperative, together with the governor's letter of warning, has been sent out in large numbers.

WASHINGTON.

Fire in Doctor's Office.—A fire in the laboratory of Dr. J. E. Preuss, Dayton, June 18, destroyed his laboratory and apparatus, causing a loss of about $2,000.

Railway Hospital in Tacoma.—The contract has been awarded to a Tacoma firm for the erection of a hospital for the Northern Pacific Railway Employe's Beneficial Association, at Tacoma, to cost $700,000.

Medical Books for State Library.—The initial instalment of more than 1,000 volumes for the newly-established medical department of the state library, Olympia, has been received. The outlay for the first order was $2,500.

Sanitarium Burned.—Fire, on July 7, destroyed the principal building of the Spokane Sanitarium, a branch of the Battle Creek Sanitarium, involving a loss of $15,000, about half of which is covered by insurance. All the patients were removed in safety.

New Spokane Hospitals Open.—Emmanuel's Hospital was formally opened July 14. The institution will accommodate 20 patients, and is under the charge of Dr. Duffalloschotthower.——The new St. Luke's Hospital was informally opened June 22. Mayor Boyd, Bishop Lemuel H. Wells and Dr. Thomas L. Catterson delivered addresses.

License Revoked.—The State Board of Medical Examiners, at its meeting, July 7, revoked the license of Dr. James G. Stewart, Seattle. The charge against Dr. Stewart was preferred by Dr. George Walker of Seattle, who alleged that Stewart offered to furnish answers to the set of medical questions used by the board to one O. V. Lawson for the sum of $600. Dr. Stewart has begun suit against the board, claiming that it had no right to revoke his license.

State Association Meets.—The Washington State Medical Association held its fifteenth annual session, July 12, 13 and 14, at Seattle. Both socially and professionally it was one of the best meetings ever held in the state. The following officers were elected: Dr. James R. Yocum, Tacoma, president; Drs. James A. Durrant, Shonomish, and William H. Hall, Spokane, vice-presidents; Dr. James B. Eagleson, Seattle, treasurer, and Drs. Johnston, Bellingham, and Nathaniel J. Redpath, Olympia, judicial commmittee. A committee was appointed to investigate dairies in the state and arouse interest in the crusade against impure milk, with Dr. Kenelm Winslow as chairman. The association will convene next year in Tacoma.

WISCONSIN.

Give Earles Loving Cup.—At a banquet given in honor of Dr. William H. Earles, president and founder of Milwaukee Medical College, July 16, a silver loving-cup was presented to Dr. Earles by Dr. Fred R. Weber on behalf of those present. Dr. William A. Evans, Chicago, acted as toastmaster. With the cup was presented a testimonial.

Much Typhoid at Mendota.—The epidemic of typhoid fever at the State Hospital for the Insane, Mendota, is said to have affected 10 per cent. of the inmates and employees. Five deaths have occurred. The infection has been traced to a pollution of the water supply, which is drawn from Lake Mendota at a point near which the sewage from the institution is emptied into the lake.

Personal.—Dr. John M. Dodd, Ashland, has been appointed chief surgeon of St. Joseph's Hospital in that city, and is now closing the private hospital which he has conducted for the past ten years.——Dr. Lawrence J. De Swarte, Milwaukee, has gone abroad, and will return in the early spring.——Dr. Ernest L. Bullard, superintendent of the Wisconsin State Hospital for the Insane, Mendota, has resigned and has been succeeded by Dr. Charles Gorst, Baraboo.——Dr. Joseph P. Donovan, late city physician, has been appointed health officer of Madison, vice Dr. Julius C. Sommers, late health officer, resigned.——Dr. Henry E. Troohig, Fond du Lac, sailed for Europe July 16.——Dr. Joseph B. Noble has succeeded Dr. Benjamin U. Jacobs as physician of the State Industrial School for Boys, Waukesha.——Dr. and Mrs. Frank E. Andre, Kenosha, are reported seriously ill from ptomaine poisoning.

Care of Tuberculous Poor.—At a recent meeting of the Medical Society of Milwaukee County, the following resolution was adopted:

RESOLVED, That a committee be appointed to take up the question of arranging a public educational exhibition on tuberculosis, to consider the establishment of accommodations in Milwaukee for the treatment of the tuberculous poor.

The following were appointed on the committee: Drs. Uranus O. B. Wingate, John W. Coon, John M. Beffel, Lewis F. Jermain, Hoyt E. Dearholt, Daniel W. Harrington, and Charles H. Stoddard. The committee organized by electing Dr. Stoddard secretary, and the following sub-committees were appointed: Public and medical press, Dr. Coon; city associations, Dr. Dearholt; exhibition, Dr. Beffel; literature, Dr. Jermain; finance and lectures, Dr. Harrington, and correspondence, Dr. Stoddard.

FOREIGN.

Successor to Rieder in Turkey.—Vollbrecht of Darmstadt has accepted the invitation of the sultan of Turkey to take general charge of medical affairs in Turkey. He leaves for Constantinople in the fall.

Anti-Cancer Dispensary.—The German cancer research committee has appropriated $500 to fit up a small dispensary exclusively for cancer subjects on the same lines as the anti-tuberculosis dispensaries in France, described in an editorial on "Home Treatment of Tuberculosis" on page 33.

Accident to Esmarch.—We regret to learn that this famous veteran surgeon has recently fractured his clavicle. The latest reports say that his condition is as satisfactory as could be expected. His eightieth birthday was celebrated with much ceremony last year.

Endowed Beds in the Russian Red Cross Society.—The reports from the seat of war are censored too closely for much information in regard to the medical aspect of the war to appear in our Russian exchanges at present. One states, however, that there are 1,039 memorial endowed beds at the disposal of the Red Cross Society. It has now 18 field hospitals at the seat of active war, with 3,535 beds.

Prizes for Diversion of the Sick.—A German paper, the organ of the nurses in the hospitals and elsewhere, announces three money prizes for the best works on the occupation, diversion, entertaining and recreation of the sick. Further details in regard to the prizes are given in No. 10 of the journal—the *Deutsche Krankenpflegezeitung*—published by Elwin Staude, Berlin. This number will be sent postpaid and free of charge to all who write for it.

Organization of the Profession in Germany.—As an instance of the way in which the physicians of southern Germany are standing shoulder to shoulder in the struggle with the sickness insurance societies, we note that only a single applicant responded to an advertisement for medical officers after the resignation of all the physicians of the sickness insurance society at Ruhpolding. The society advertised in the three principal Bavarian dailies, but not another response was elicited. The company then acceded to the demands of its former medical officers, and reinstated them.

South American International Sanitary Conference.—Representatives of the principal South American states met at Rio Janeiro, June 5 to 12, to consider measures of sanitary prophylaxis. The measures hitherto in vogue have now become obsolete, and the conference decreed that they should be abandoned, and others, to conform to the latest scientific data, be adopted. The representative of Brazil in the conference was Dr. Azevedo Sodré, editor of the *Brazil Médico*. The secretary of the meeting was also on the editorial staff of this journal, as is also the chief of the National Department of Health, Dr. O. G. Cruz, whose efforts to eradicate plague and cholera from Rio have been so successful that the recent Latin-American Congress sent him a special vote of congratulations.

Prophylaxis of Typhoid in Western Germany.—Koch's ideas in regard to the prevention of the spread of typhoid fever by stamping out each focus have been carried out on a large scale in Alsace, Lorraine, and other western provinces. Five bacteriologic stations were organized at various points. The superintendents of these stations, with other specialists and physicians of the region, met at Berlin, June 29, to ascertain what had been learned and accomplished in regard to the eradication of the foci of typhoid fever. The assemblage was unanimous in decreeing that persons exhibiting typhoid bacilli in the urine or stools, with or without other symptoms or in apparent perfect health, should be isolated, if convenient, and if not, at least their excreta should be disinfected, as also their bed and body linen. The assemblage included R. Koch, Gaffky, Gruber of Munich, and Forster of Strasburg.

The Pasteur Monument.—Near the Invalides at Paris the imposing statue of Pasteur was unveiled July 16, in the presence of the president of the republic, the entire diplomatic corps, and representatives from various scientific societies almost the world around, including Behring and van Ermengem. The statue represents Pasteur seated and musing. The base of the solid shaft is encircled by a group of large figures representing Humanity holding out the suffering child for Pasteur to take, while other figures represent the agriculturist, the farmer, the shepherd, each basking in peaceful serenity, as Pasteur has conquered the cattle and plant diseases that used to decimate their flocks and vines. It seems that there are almost as many statues of Pasteur in France and as many streets named after him as after Washington in this country. This last monument, however, is on a much more elaborate scale than any of the rest. The *Journal de Méd. de Paris*, by the way, states that Pasteur, with all his ardor for science, had "a frugal mind," and accumulated a large fortune. It hints that he retained an interest in certain filters and industrial processes based on his researches. This exchange has always scoffed at bacteriology and been antagonistic to serotherapy in any form, and prophesies that the day will come when these statues to Pasteur will be a laughing stock. The sarcastic editorial comments on the present enthusiasm for serums, etc., are always entertaining reading.

Correspondence.

Diabetes Mellitus—With a New Method of Prognosis.

NEW YORK CITY, July 26, 1904.

To the Editor:—It seems to be a rather precipitous course to base "a new method of prognosis" on the study of one case of a certain pathologic condition. I allude to the abstract of a report on a case of diabetes mellitus, read at the recent session of the American Medical Association, and published in toto in the issue of THE JOURNAL, July 23.

The authors of the communication, Mandel and Lusk, having found a constant dextrose-nitrogen ratio of 3.65:1 in a diabetic, in a state of "low acidosis," while under a meat-fat regimen, which "ratio was uninfluenced by fat digestion or fat metabolism," "formulate a new clinical method of prognosis in diabetes, using the D:N ratio for this purpose." They contend that the occurrence of 3.65 grams dextrose to 1 gram nitrogen in the second day's urine after institution of a "meat-fat diet" signifies "a complete intolerance for carbohydrates and probably a quickly fatal outcome." Analyzing these statements, we find that:

1. The prescribed diet was not a purely meat-fat regimen inasmuch as "rich cream" containing over 4 per cent. of convertible lactose was permitted in the dietary.

2. No figures are given as to the proportion of ingested and egested nitrogen.

3. The authors have adduced no proof as to the origin of *all* the urinary dextrose and nitrogen from the ingested material.

Again, the abstract as read and published is entirely too meager to afford a thorough insight into the authors' contention.

HEINRICH STERN.

X-Ray in Leukemia and Pseudoleukemia.

DENVER, July 28, 1904.

To the Editor:—I note Dr. Pusey's letter in THE JOURNAL, July 23, in which he refers to some early reports of the Roentgen ray treatment of pseudo-leukemia. In this connection permit me to state that in June, 1902, long previous to Senn's report, I reported the case of Mrs. A. (my Case No. 22) to the Colorado State Medical Society, and the article containing this was soon after published in the *Denver Medical Times*. In August, 1902, I treated J. B. (my Case No. 81), a most remarkable example of the effect of *x*-rays in pseudo-leukemia. This was reported to the Denver Clinical and Pathological Society about that time, also included in an article read before the Rocky Mountain Interstate Medical Association at Salt Lake City, August, 1903, included in the transactions of that society, and but recently published in the *New York Medical Journal*. This article also reported four other cases of Hodgkin's disease treated by *x*-ray.

G. H. STOVER, M.D.

Intestinal Suture with the Gelatin Cylinder.

TOLEDO, OHIO, July 27, 1904.

To the Editor:—The *New York Medical Journal*, March 12, 1904, speaks of the work of Hepperlen with the gelatin cylinder as a support during the suturing of the cut ends of the bowel. Five years ago, while surgeon for the Edward Ford Plate Glass Co., I did a great deal of experimental work with soluble cylinders for intestinal supports during the suturing. I found the simple gelatin capsule as satisfactory as any. I add my small indorsement to this method as a simple and rapid way of holding the bowel ends, for quick suturing of the same.

C. M. HARPSTER.

The Period of Incubation in Tetanus.

TYLER, TEXAS, July 29, 1904.

To the Editor:—In report of my case of tetanus in THE JOURNAL, July 23, 1904, kindly make the following corrections: The patient was injured Saturday, Sept. 1, 1894, at about 7:30 p. m. Amputation at thigh was done Wednesday, Sept. 5, 1894, at 6:15 p. m. Tetanus suddenly developed at 5 a. m. on the following morning, Thursday, and he died from tetanus at 3:15 p. m. on this day, which was five days from date of injury. ALBERT WOLDERT, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PREGNANCY FROM RAPE DOES NOT JUSTIFY ABORTION.

———, ——., July 30, 1904.

To the Editor:—Please answer in the next issue of THE JOURNAL the following question, kindly withholding from publication the name and place: Is the production of abortion unjustifiable or illegal in a pregnancy resulting from rape? In the case in mind a young girl, 16 years old and of unquestionable reputation, was drugged, and while in an unconscious state criminally assaulted. She was found still in a semi-unconscious condition and has no recollection of the deed, but the results of an examination by myself at the time (an examination both of her person and microscopically of the vaginal contents and of stains on her clothing) showed conclusively that coitus had been effected. The act occurred directly following her menstrual period and present indications point to a probable pregnancy. W.

ANSWER.—The enormity of the crime of rape—even if a pregnancy be thus forced on an innocent girl—does not justify murder. This is law. Our correspondent's last sentence leads us to suggest that he bear in mind, when considering the diagnosis of pregnancy, that authorities state that pregnancy is rare after *real* rape, and that the fright may easily cause suppression of menstruation and other subjective symptoms.

Marriages.

JOHN P. BENSON, M.D., to Miss Irene Devine, both of Joliet, Ill., July 14.

SIDNEY V. WEST, M.D., to Miss Minnie Miles, both of Colusa, Col., June 29.

J. C. S. SIEGFRIED, M.D., Wilbeaux, Mont., to Miss Lila Beggs of Chicago, May 25.

ROY W. CHIVERS, M.D., Jackson, Mich., to Miss Ella Ducher of Gladwin, July 19.

JOHN A. RUAN, M.D., to Miss Rachel Llewellyn, both of Beacon, Iowa, July 6.

CHARLES E. SLAGLE, M.D., to Miss Myrtle Shoup, both of Abingdon, Ill., June 28.

ELLA ABBOTT, M.D., to WILLIAM HARRY TATMAN, M.D., both of Oklahoma City, Okla.

HARRY W. LONG, M.D., to Miss Emily Rees, both of Escanaba, Mich., July 6.

EDWIN NICHOLS, M.D., Newark, Ohio, to Miss Olive Spencer of Dresden, Ohio, July 6.

WILLIAM F. SPEERS, M.D., to Miss Agnes E. Petersen, both of Davenport, Iowa, July 20.

CLEMENT BOCKOVEN, M.D., Bryant, Ind., to MISS DE COU, M.D., of Chicago, June 29.

LOUIS GREIBER, M.D., Foster City, Mich., to Miss Clara Kibby of Escanaba, Mich., July 6.

FREDERICK B. SCHNEERER, M.D., to Miss Verda Phillips, both of Deadwood, S. D., July 9.

JOHN C. LARKIN, M.D., to Miss Daisy Turney Spargur, both of Hillsboro, Ohio, July 19.

CHARLES E. MORGAN, M.D., Humboldt, Ill., to Miss Sarah Dole of Mattoon, Ill., July 7.

H. A. ANGUS, M.D., Garrison, Iowa, to Miss Alice Holbrook of Chicago Heights, Ill., June 29.

GUY C. CONKLE, M.D., Boyne Falls, Mich., to Miss Edith A. Crego of Brooklyn, Mich., July 7.

ARTHUR D. WEST, M.D., Moline, Ill., to Miss Margaret E. Rosborough of Elgin, Ill., June 28.

JAMES W. FRAZIER, M.D., Honey Creek, Iowa, to Miss Mildred E. Smith of Omaha, Neb., June 29.

GEORGE MARESH, M.D., Riverside, Iowa, to Miss May Boyington of Lone Tree, Iowa, July 14.

BENJAMIN H. VOEBEL, M.D., Vailsburg, N. J., to Miss Jessie E. Stevens, at Ilchester, Md., July 14.

JOSEPH C. REIFSNYDER, M.D., Scranton, Pa., to Miss L. Claire Whitmoyer of Bloomsburg, Pa., July 1.

D. EDWARD WARREN, M.D., Trenton, N. Y., to Miss Mary P. Johnson of Canandaigua, N. Y., July 7.

HENRY ASHBURN DAVIS, M.D., Cairo, Ill., to Miss Bertie Nancy Moore of Commerce, Mo., July 6.

FRED P. LIERLE, M.D., Marshalltown, Iowa, to Miss Eugenia Margaret West of Osceola, Neb., July 27.

OTTO A. WALL, JR., M.D., St. Louis, Mo., to Miss Emma Elizabeth Babler of Eldorado Springs, Mo., July 6.

ROBERT M. LITTLE, M.D., East St. Louis, Ill., to Miss Mabel Allyn of Modesta, Ill., at East St. Louis, Ill., July 7.

WALLACE A. AITKEN, M.D., Valley Falls, Kan., to Miss La Verne McKeever of Oklahoma City, Okla., July 21.

JAMES W. MACDONALD, M.D., Aurora, Ill., to Miss Bertie Grace Hardie of Chicago, at Milwaukee, Wis., June 17.

Deaths.

Frantz H. Coe, M.D. University of Michigan Department of Medicine and Surgery, 1888, a member of the American Medical Association; president of the State Board of Medical Examiners, and of the Washington State Medical Association; one of the most prominent physicians of Washington, who, although suffering acutely, presided over the deliberations of the state medical association, collapsed, July 16, and died from Bright's disease, at his home in Seattle, the same morning, aged 47. He had been for ten years surgeon of the Northern Pacific and Seattle and International railways.

Edward W. Lambert, M.D. College of Physicians and Surgeons, Columbia University, New York City, 1857, medical director of the Equitable Life Assurance Society since 1858, member of the New York Academy of Medicine, the Pathological Society, the Medical Society of the County of New York, the Medical and Surgical Society, etc.; attending physician to St. Luke's Hospital, the Nursery and Child's Hospital, died from heart disease at his home in New York City, July 17, aged 73.

Harry S. Torrance, M.D. Department of Medicine, University of Pennsylvania, Philadelphia, 1890, a member of the American Medical Association; Colorado State Medical Society and Teller County Medical Society; a member of the Board of Health of Cripple Creek, Colo., was killed in a wreck on the Cripple Creek Short Line Railway, near Cameron, Colo., July 5, aged 35. The executive committee of the board, at a special meeting, July 13, adopted resolutions of respect and sympathy.

Charles G. Ward, M.D. Dartmouth Medical School, Hanover, N. H., 1882; coroner of Oneida County, N. Y., from 1896 to 1899, visiting physician to St. Elizabeth's Hospital, Utica, and sometime vice-president of Oneida County Medical Society and president of the Utica Medical Club, died at his home in Utica, July 3, from uremia, after a short illness, aged 49.

Seymour T. Jarecki, M.D. College of Physicians and Surgeons in the City of New York, 1894, a member of the American Medical Association, assistant county physician of Denver County, Colo., who was murderously assaulted at his office in Denver by an unknown assailant in December last, was shot and killed at his home in Denver, June 30.

Frank Anthony Walke, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1852, surgeon in the U. S. Navy prior to the Civil War, and then surgeon to the Forty-Sixth Virginia Infantry, C. S. A., died at his home in Norfolk, Va., July 5, after an illness of three weeks, aged 73.

Richardson B. Okie, M.D. Medical Department University of Pennsylvania, Philadelphia, 1870, manager of the country branch of Rush Hospital, Philadelphia, and visiting physician to the Presbyterian Hospital, Devon, Pa., died at his home in Berwyn, Pa., from heart disease, July 30.

Henry M. Wetherill, M.D. Medical Department University of Pennsylvania, Philadelphia, 1877, formerly surgeon to the Pennsylvania Hospital and Pennsylvania Hospital for the Insane,

and a member of the Society of Blockley Physicians, died at his home in Philadelphia, July 27.

Elijah Williams, M.D. University of Maryland Medical School, Baltimore, 1869, of Armiger, Md., formerly state senator from Anne Arundel County, died at the University Hospital, Baltimore, July 6, from disease of the liver, after a long illness, aged 56.

John A. Morrison, M.D., 1839, died at his home in Cochranville, July 26, aged 93 years. He was surveyor of the Port of Philadelphia under President Buchanan and was said to be the only surviving member of the thirty-third congress.

Frank W. Whitcomb, M.D. University of Buffalo (N. Y.) Medical Department, 1882, of Warren, Pa., was drowned in Conewango Creek, near Fentonville, Pa., June 30, aged 48. He was coroner of Warren County for several years.

Charles L. Steel, M.D. University of Maryland School of Medicine, Baltimore, 1882, professor of prosthetic dentistry in the University College of Medicine, Richmond, Va., died in the Virginia Hospital in that city, June 28, aged 44.

Joseph Bacon Shaw, M.D. University of Pennsylvania, Philadelphia, 1877, president of the Monroe County Medical Association, died suddenly, July 18, at his home in Delaware Water Gap, Pa., from heart disease, aged 58.

Clinton D. Henton, M.D. Rush Medical College, Chicago, 1861, for more than half a century a resident of Danville, Ill., died at his home in that city, June 25, from paralysis, after an illness of six years, aged 73.

John Jastremski, M.D., for 21 years superintendent of the Louisiana Deaf and Dumb Institute, Baton Rouge, died at that institution, July 5, from paralysis, after an illness of three years, aged 64.

William H. Pilcher, M.D. University of Nashville (Tenn.) Medical Department, 1852, twice a member of the legislature, and county judge for 20 years, died at his home in Norwood, Ga., July 1, aged 75.

Patrick G. Jennings, M.D. Laval University, Medical Department, Quebec, 1876, died at his home in Melrose Park, Ill., July 3, aged 47. He retired from practice in 1900 on account of ill-health.

Julius A. Pirlot, M.D. Academie de Médecine, Faculté de Paris, France, 1873, surgeon in the Franco-German War, died at his home in Worcester, Mass., June 26, from heart disease, aged 58.

William H. Jarman, M.D. New York, an officer in the Confederate service, and for many years a practitioner of Arkansas, died at Nashville, Tenn., July 5, after a long illness, aged 79.

John Boyd Wilson, M.D. Jefferson Medical College, Philadelphia; surgeon during the Civil War and in charge of the hospital at Memphis, Tenn., died in Harrisburg, Ill., recently, aged 72.

James Williams, M.D. Shelby Medical College, Nashville, Tenn., 1848, after 42 years of active practice, died July 5, at his home in Nashville, Tenn., after a lingering illness, aged 82.

Charles Shattuck, M.D. Miami Medical College, Cincinnati, 1885, died at his home in Maddyville, near Ironton, Ohio, June 29, from rheumatism, after an illness of ten weeks, aged 54.

James M. Palmer, M.D. New York University Medical Department, New York City, 1869, died at his home in Dalton, Ohio, from paralysis, June 24, after a prolonged invalidism.

James B. McElrath, M.D. Jefferson Medical College, Philadelphia, 1871, died at his home in Jackson Center, Pa., from paralysis, June 30, after an illness of four days, aged 60.

Abner Smead, M.D. University of Virginia Medical Department, Charlottesville, 1868, of Vinton, Va., died suddenly at Stewartsville, Va., July 24, from heart disease, aged 80.

I. Melvin Jacobs, M.D., College of Physicians and Surgeons of Chicago, 1901, of Wichita, Kan., died at his home in Perth, Kan., June 29, from tuberculosis of the lungs, aged 27.

J. C. McConnell, M.D., anatomist of the Army Medical Museum, Washington, D. C., for 39 years; a veteran of the Civil War, died at Liberty, N. Y., July 25, aged 60.

Franklin H. Oulton, M.D. New York University Medical Department, New York City, 1876, died at his home in Moncton, N. B., from paralysis, July 4, aged 54.

Stephen D. Pollock, M.D. Bellevue Hospital Medical College, New York City, 1871, died suddenly at his home in Galesburg, Ill., July 20, from apoplexy, aged 64.

H. G. Logan, M.D. Atlanta (Ga.) Medical College, 1880, formerly state senator from Independence County, Ark., died recently at his home in Newark.

Samuel Records, M.D. Medical College of Ohio, Cincinnati, 1847, died at his home near Lawrence, Ind., July 8, after an illness of four months, aged 84.

H. L. Simrall, Jr., M.D. University of Louisville, Medical Department, 1882, died suddenly at his home in Glass, Miss., from heart disease, June 27.

Grigg S. Stewart, M.D. Miami Medical College, Cincinnati, 1877, died at his home in Pickerington, Ohio, July 5, six weeks after an operation, aged 50 .

Charles Everett Vaughan, M.D. Harvard University Medical School, Boston, Mass., 1863, died at his home in Santa Barbara, Cal., June 24, aged 68.

La Fayette Redmon, M.D. Rush Medical College, Chicago, 1865, died at his home in Des Moines, Iowa, July 2, from paralysis, aged 71.

James J. Kelly, M.D. Ohio, 1860, committed suicide at his rooms in Argentine, Kan., by hypodermic injection of morphin, June 23, aged 65.

Robert M. Stephenson, M.D. Ohio, 1903, died from consumption, July 1, at his home in Springfield, Ohio, after a long illness, aged 24.

Thomas Joyner, M.D. Memphis (Tenn.) Hospital Medical College, 1889, died at his home in Pontotoc, Miss., June 26.

Charles B. Moore, M.D. Ohio, 1892, died suddenly at his home in Zanesville, Ohio, July 2, from apoplexy, aged 37.

J. T. Koen, M.D. Missouri, 1878, died at his home in Walshville, Ill., July 14, after a long illness, aged 62.

R. F. Hotchkiss, M.D., formerly of New Jersey, died at his home in Oakland, Cal., June 15, aged 88.

Fred C. White, M.D., died suddenly at his home in Redmoon, Okla., July 1, from kidney disease.

Edward F. Wayman, M.D., an ex-confederate soldier, died at Staunton, Va., July 23, aged 57.

Ambrogene Holland, M.D., of Des Moines, Iowa, died suddenly in Los Angeles, Cal., aged 69.

W. A. Simpson, M.D., died at his home in Zwolle, La., June 21, from malarial fever.

John H. Williamson, M.D., died at his home in Graham, N. C., July 9, aged about 80.

James A. Humston, M.D., died at his home in Henry County, Ky., July 5, aged 82.

Nat E. Hyder, M.D., died recently at his home in Gap Run, Tenn.

Death Abroad.

Sir John Simon, K.C.B., M.R.C.S. Eng., 1838; vice-president of the Royal College of Surgeons from 1876 to 1878 and president, 1878-1879; Fellow of the Royal Society; Hon. M.D. et Chir. Munich; Hon. M.D. Dublin; Hon. D. C. L. Oxford; Hon. LL.D. Cambridge and Edinburgh; late crown member of the medical council; past president London Pathological Society and London Medical Teachers' Association; consulting surgeon and formerly surgeon and lecturer on pathology, St. Thomas' Hospital; formerly officer of health of the city of London; medical officer of the General Board of Health, Privy Council and Local Government Board, notable as a sanitarian, anatomist, surgeon and pathologist, and a prolific writer on these subjects, died at his home in London, July 23, aged 88. He was knighted by the queen in 1887.

State Boards of Registration.

Delaware June Report.—Dr. P. W. Tomlinson, secretary of the Medical Examining Board representing the Medical Society of Delaware, reports the written examination held at Dover, June 21-23, 1904. The number of subjects examined in was 10; total questions asked, 90, and percentage required to pass, 75. The total number examined was eight, who all passed. The following colleges were represented:

PASSED.		
College.	Year Grad.	Per Cent.
Jefferson Medical College of Philadelphia	(1904)	80.6
University of Maryland	(1904)	88.5
Medico-Chirurgical College of Philadelphia	(1904)	89.9, 77.4, 77.3; (1901) 78.1.
University of Pennsylvania	(1900)	81.2
Maryland Medical College	(1902)	75.0

The board representing the Homeopathic Medical Society of

Delaware examined two candidates at Wilmington on the same date, and both were passed.

PASSED. College.	Year Grad.	Per Cent.
Hahnemann Medical College, Philadelphia	(1904)	87.0
Southern Homeopathic Medical College, Baltimore	(1904)	89.9

Illinois April Report.—Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, April 25-27, 1904. The subjects examined in numbered 11, and the total questions 110; percentage required to pass 75 per cent. Three hundred and forty-eight persons were examined, 340 passed, 8 failed.

Hahnemann Medical College and Hospital, (1904). The grade of 79 was reached by one, 80 by two, 81 by two, 82 by two, 83 by four, 84 by four, 85 by three, 86 by three.

College of Physicians and Surgeons, Chicago. (1903). 82: the grade of 77 was reached by two, 78 by two, 80 by five, 81 by ten, 82 by nine, 83 by twenty, 84 by sixteen, 85 by nine, 86 by fifteen, 87 by thirteen, 88 by five, 89 by three, 90 by five, 91 by three.

Northwestern University Medical School, (1904). The grade of 76 was reached by one, 82 by one, 83 by one, 84 by six, 85 by five, 86 by four, 87 by two, 88 by three, 89 by four, 90 by eight, 91 by five, 92 by four, 93 by one.

Dearborn Medical College, Chicago	(1904)	88, 86, 89

Rush Medical College, (1904). The grade of 80 was reached by two, 82 by two, 83 by two, 84 by six, 85 by six, 86 by four, 87 by fifteen, 88 by two, 89 by three, 90 by four, 91 by two, 92 by one, 93 by one, and 94 by one.

Jenner Medical College, Chicago, (1904). The grade of 78 was reached by two, 80 by one, 82 by two, 83 by three, 84 by one, and 85 by one.

American College of Medicine and Surgery, Chicago. (1904). The grade of 76 was reached by two, 81 by three, 82 by four, 83 by one, 84 by five, 85 by two, 86 by one and 87 by one.

Johns Hopkins Medical School, Baltimore	(1903)	91

National Medical University, Chicago, (1903) 82, 77, 75; (1904) 80, 83, 81.

Homeopathic Medical College, Chicago, (1902) 81, (1904), the grade of 78 was reached by one, 79 by two, 80 by one, 81 by one, 82 by two, 83 by four, 84 by three, 85 by three, 86 by two, 87 by two.

College of Medicine and Surgery, Chicago, (1904). The grade of 75 was reached by one, 78 by one, 80 by three, 81 by two, 82 by three.

Bennett Medical College, Chicago, (1904). The grade of 79 was reached by one, 81 by two, 82 by one, 83 by two, 84 by three, 86 by one.

Illinois Medical College, Chicago, (1904). The grade of 76 was reached by one, 79 by one, 81 by one, 83 by one, 86 by one, 88 by one.

Hering Medical College, Chicago, (1904). The grade of 78 was reached by one, 80 by one, 81 by one, 83 by one, 85 by two, 86 by one, 89 by one.

Keokuk Medical College, Keokuk, Iowa	(1895)	76
Coll. of Phys. and Surgs., Minneapolis	(1897)	83
American Med. Missionary Coll., Chicago	(1903)	84
Central Coll. Phys. and Surgs. Indianapolis	(1898)	77
Laval Univ., Montreal and Quebec, Canada	(1904)	85
Eclectic Medical Institute, Cincinnati	(1904)	77
Louisville Medical College	(1904)	76, 83
Harvard Medical School, Boston	(1894)	87

FAILED.

College of Medicine and Surgery, Chicago	(1904)	43
College of Physicians and Surgeons, Chicago	(1904)	69, 74
Hahnemann Medical College, Chicago	(1904)	73
American Medical College, Chicago	(1904)	63
Jenner Medical College, Chicago	(1904)	66
National Medical University, Chicago	(1903)	72
University of Louisville	(1904)	72

The general average for all representatives of Hahnemann Medical College and Hospital was 83.1; for representatives of the College of Physicians and Surgeons, 84.1; for representatives of Northwestern University Medical School, 89.6; for representatives of Rush, 85.; for the Homeopathic Medical College, 79.5.

Massachusetts May Report.—Dr. E. B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the written examination held at Boston, May 12-13, 1904. The number of subjects examined in was 9; total questions asked, 60, and percentage required to pass, 70. The total number examined was 32, of whom 22 passed and 10 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Physicians and Surgeons, Baltimore	(1903)	70.5, 70.3
Kentucky School of Medicine	(1903)	70.0
McGill University	(1903)	77.1
Harvard	(1894) 78.8, (1903) 84.4, 82; (1904)	71.6
Cornell	(1902)	76.7
Georgetown University	(1903)	73.1
Dartmouth	(1904) 76.4, (1882)	70.0
Woman's Medical College, Pennsylvania	(1901)	78.5
University of Michigan	(1901)	82.0
Maryland Medical	(1904)	74.5
Baltimore Medical	(1904) 79, 80.6, 70, 70,	71.4
Detroit Medical College	(1904)	81.0
Tufts Medical College	(1903)	72.5

FAILED.

Baltimore University	(1903) 42.1, (1904)	64.1
Pulte Medical	(1902)	64.1
Queen's University	(1899)	58.5
Tufts Medical College	(1896) 56.1, (1899)	63.5
Physicians and Surgeons, New York	(1892)	50.8
Maryland Medical	(1904) 60.8,	67.1
University of the South	(1903)	66.3

Michigan June Report.—Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, June 14-17, 1904. The number of subjects examined in was 19; total questions asked, 95; percentage required to pass, 75. The total number examined was 46, and all passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Michigan (1904). The grade of 88 was reached by one, 92 by six, 93 by four, 94 by ten, 95 by six, 96 by two, 97 by one.		
Harvard Medical School, Boston	(1896)	93
Trinity Medical School, Toronto	(1895, 91, (1897)	89
Detroit College of Medicine, (1904) 93, 78, 80, 84;	(1903)	82, 89
Detroit Homeopathic Medical College	(1904)	85
Cornell University	(1903)	89
McGill University, Montreal	(1901)	95
University of Illinois	(1900) 75, (1904)	83
University of Colorado	(1903)	84
Jefferson Medical College, Philadelphia	(1904)	86

The general average of all representatives of the University of Michigan was 94.

Minnesota June Report.—Dr. C. J. Ringnell, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, June 7-9, 1904. The number of subjects examined in was 12, and the total questions asked, 95, and the percentage required to pass, 75. Of the 90 examined 80 passed and 10 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
University of Minnesota, (1904) the grade of 76 was reached by one, 77 by four, 78 by six, 79 by three, 80 by three, 81 by twelve, 82 by eight, 83 by four, 84 by two, 85 by five, 86 by five and 87 by two.		
University of Minnesota, Homeo. Dept.	(1904)	85.6, 82.7, 87.6
Hamline University, (1904) the grade of 75 was reached by one, 78 by two, 79 by one, 83 by one and 84 by one.		
Creighton Medical College	(1904)	75.1
College of P. and S., Chicago.	(1904) 80.9, 86.8, 77.2; (1899)	79.4
Jefferson Medical College	(1904)	85.2
Chicago Homeopathic Medical College	(1902)	76.1
Harvard Medical School	(1900)	82.0
Rush Medical College	(1903)	77.1
Medico-Chirurgical College of Philadelphia	(1903)	82.6
Hahnemann, Chicago	(1903) 78.9, (1904)	80.2
Northwestern, Chicago	(1904)	81.4, 80.2
University of Michigan	(1903) 81, (1904)	86.7

FAILED.

Hamline University	(1904) 64.3, 71.3, 76.4*; (1903)	71.6, 61.7
Coll. of Med. and Surg. (Eclectic), Chicago	(1904)	70.9
Keokuk Medical College	(1900)	66.0
Kansas City Medical College	(1904)	73.4
Sioux City Medical College	(1904)	70.9
University of Minnesota	(1904)	77.8*

*Licenses not granted because of low marks in the principal subjects.

The general average for all representatives of the University of Minnesota was 81.5, and for all representatives of Hamline University, 79.5.

North Dakota June Report.—Dr. H. W. Wheeler, secretary of the North Dakota State Medical Examining Board, reports the written examination held at Grand Forks, July 5, 1904. The number of subjects examined in was 13, and the percentage required to pass 75. The total number examined was 21, of whom 19 passed. The two who failed were graduates of Hamline University and Barnes Medical College, St. Louis. The following colleges were represented.

PASSED. College.	Year Grad.	Per Cent.
University of Minnesota	(1904) 75, 77, 82, 84,	85
P. and S., St. Louis	(1901)	83
Rush	(1903)	90
Milwaukee Medical College	(1904)	76
Trinity University	(1904)	84, 86
University of Illinois	(1904)	75
Sioux City Medical College	(1904)	75
Jefferson Medical College	(1904)	78, 82
University of Christiania		79
Detroit School of Medicine	(1904)	91
Hamline University	(1904)	81, 75
P. and S., Minneapolis	(1901)	75

Ohio Report.—Dr. Frank Winders, secretary of the Ohio State Board of Medical Registration and Examination reports the written examinations recently held at Cleveland, Cincinnati and Columbus. The number of subjects examined in was 9; total questions asked, 90; percentage required to pass 75. The total number examined was 210, of whom 199 passed and 11 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Medical College of Ohio	(1903) 90, 90; (1904) the grade of 77	

was reached by one, 78 by one, 82 by one, 83 by two, 84 by four, 85 by two, 86 by five, 87 by one, 88 by two, 89 by two, 90 by seven, 91 by three, 92 by one, 93 by two, 94 by two, 95 by one.

Starling Medical College (1904), the grade of 75 was reached by two, 78 by two, 79 by one, 81 by one, 82 by one, 83 by three, 84 by one, 85 by two, 86 by three, 87 by four, and 89, 90 and 92 each by one.

Ohio Medical University (1904), the grade of 76 was reached by one, 78 by one, 79 by one, 80 by one, 82 by two, 83 by two, 84 by one, 85 by three, 86 by three, 88 by three, 89 by six, and 90, 91 and 92 each by one.

Cleveland College of Physicians and Surgeons (1904), the grades of 78, 80, 81, 86, 87 and 88 were each reached by one; 89 by two, 91 by three.

Western Reserve Medical College (1904), the grade of 84 was reached by one, 85 by two, 86 by one, 87 by one, 88 by three, 89 by four, 90 by two, 91 by four, 92 by seven.

University of Toronto.....(1900) 87
Toledo Medical College.....(1904) 75, 82, 84
Rush Medical College .....(1902) 91
University of Michigan, (1899) 85, 88; (1903) 89, 90; (1904) 86, 86, 87, 93, 94.
Western Pennsylvania Medical College.....(1904) 81, 91
Medico-Chirurgical College, Philadelphia.....(1904) 92
Jefferson Medical College.....(1904) 84, 89, 90
University of Louisville .....(1894) 78
Laura Memorial Medical College.....(1903) 88, 89
Hospital College of Medicine, Louisville.....(1902) 78
Pulte Medical College, Cincinnati.....(1904) 84, 85, 87, 95
Eclectic Medical Institute, Cincinnati, (1904) 82, 83, 84, 87, 89, 91
Cleveland Homeopathic Medical College, (1904) 75, 75, 79, 82, 84, 84, 85, 88, 89, 90.
Howard University Medical School.....(1904) 90
Columbian Univ. Med. Dept., Washington, D. C...(1904) 90
Illinois Medical College, Chicago.....(1904) 87
Johns Hopkins Medical College.....(1904) 82
Northwestern University, Chicago.....(1904) 85, 88
Columbus Medical College.....(1890) 81
University of Pennsylvania, Med. Dept.....(1904) 92
McGill University, Med. Dept., Montreal.....(1888) 89
Hahnemann Medical College, Philadelphia.....(1903) 90
American Medical Missionary College, Chicago...(1904) 95
College of Physicians and Surgeons, New York..(1903) 90

FAILED.

Ft. Wayne College of Medicine .....(1892) 73, (1902) 68
University of Louisville Med. Dept.....(1902) 71
Toledo Medical College.....(1904) 65
Cleveland Homeopathic Medical College.....(1904) 62, 65, 68
Ohio Medical University.....(1904) 69, 73
Starling Medical College.....(1904) 74, 68

The general averages for all representatives of the Medical Colleges of Ohio was 83.1; for representatives of Starling was 87.8; Ohio Medical University, 85.5; Cleveland College of Physicians and Surgeons, 86.4; Western Reserve, 89.4.

South Carolina June Report.—Dr. W. M. Lester, secretary of the South Carolina State Board of Medical Examiners reports the written examination held at Columbia, June 28-30, 1904. The number of subjects examined in was 17; total questions asked, 93; percentage required to pass, 75, and not below 60 on any branch. Of the 22 who were examined 18 passed, 4 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Medical College of South Carolina	(1904)	83.1, 77.6, 88
University of Maryland Medical Department,	(1891)	84.2, (1904) 81.7, 86.1, 87.5, 91.1
Medical College of Virginia	(1904)	89.6, 79.6, 86.4, 84
Woman's Med. Coll. of Pennsylvania	(1904)	94.0
Atlanta College of P. and S.	(1902)	77.2
Howard Medical School	(1904)	80, 77.7
Leonard Medical College	(1904)	75, 83.7
FAILED.		
Meharry Medical College	(1902)	57.1
Shaw University Medical Department	(1904)	73.2
University of Maryland Medical Department	(1904)	78.4
College of P. and S., Baltimore	(1904)	75.1

Texas April Report.—Dr. M. M. Smith, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Austin, April 21, 23, 24, 1904. The number of questions asked was 125, on 13 subjects, a percentage of 75 was required to pass. The number of persons examined was 93, of whom 64 (68 per cent.) were undergraduates; 34 passed, of whom 17 (50 per cent.) were undergraduates; 59 failed (including 3 who were conditioned), of whom 44 (74 per cent.) were undergraduates. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Baylor University Med. Dept.	(undergraduate)	75.5
Chattanooga Medical College	(1903)	76.9
Dallas University Med. Dept.	(1904)	75.3
Ft. Worth Univ. Med. Dept.,	(undergraduates)	75.1, 76.1, 79.7, 75, 75.
Kansas City Medical College	(1888)	75.0
Louisville Medical College,	(1904) 80.9, 78; (1892) 83,	(undergraduates) 81.5.
Meharry Medical College	(1904)	75, 79.0
Memphis Hospital Med. Coll.	(undergraduate)	75.0
Nashville University Med. Dept.	(1903) 75.2, (1904)	75.5
Rush Med. Coll.	(1903) 83.1, 83.7;	(undergraduate) 79.5
Tennessee University Med. Dept.,	(1904) 75.5, 82.2;	(undergraduate) 79.2.
Tulane University Med. Dept.	(undergraduates)	75.2, 76.1, 80.7
University Med. Coll., Kansas City	(1898)	75.2
University of the South, Sewanee, Tenn.	(1904)	84.1
Vanderbilt University Med. Dept.	(1904)	84.8
Washington University, St. Louis	(1900)	77.9
FAILED OR CONDITIONED.		
Baltimore Med. Coll.	(undergraduate)	31.5
Baylor University Med. Dept.,	(1904) 57.4 (undergraduates)	53.5, 56.2, 62.9, 71, 72.3.
Dallas University Med. Dept.,	(1904) 70.1, 71.9; (undergraduates)	48.8, 62.2, 66.9, 69.3.
Ft. Worth University Med. Dept.,	(undergraduates)	62.7, 67.5, 67.7, 70.5, 73.3, 73.3.
Flint Med. Coll., New Orleans	(undergraduate)	67.8
Kentucky School of Medicine	(undergraduate)	56.2
Louisville Medical College	(undergraduate)	68.1
Louisville University Med. Dept.,	(1904) 69.4, (undergraduates)	65.3, 69.7.
Meharry Med. Coll.,	(1904) 66.7, 68.6; (undergraduate)	67.2
Memphis Hospital Medical College,	(1903) 55.3, 62.3; (undergraduates)	58.6, 63, 67.4.
Nashville University Med. Dept.,	(undergraduates)	21, 27.8, 56.8, 60.2, 65.5, 69.1, 70.4, 71.5.
Ohio University Med. Dept.	(1897)	66.5
St. Louis College of P. and S.	(undergraduates)	44.2, 72.4
Tennessee University Med. Dept.,	(1893) 57.2, (1904) (undergraduates)	67.7, 70.9, 65.8, 67.8, 68.8.
Tulane University Med. Dept.	(undergraduates)	61.8, 70.8, 72.9
University Med. Coll., Kansas City	(1904)	64.6
University W. Tenn. Med. Dept.,	(1904) 72.3, (undergraduates)	67.7.
Vanderbilt University Med. Dept.	(undergraduate)	65.7

The following questions were asked:

ANATOMY.

1. Describe the orbit, and what bones enter into its formation. 2. What is the origin, course and termination of the femoral artery and mention its principal branches. 3. Describe the valves of the heart, giving location and name of each. 4. Where is the foramen of Winslow, and what is its anatomic formation? 5. Give the anatomy of the anterior half of the eyeball. 6. Describe and give the anterior and posterior boundaries of the pancreas. 7. Describe the cerebellum. 8. How many cranial nerves are there, and name them in order. 9. Describe the os innominatum. 10. Trace the spinal column, number of vertebræ, how many of each kind, the typical vertebræ, and how they differ from the rest of the same region.

HYGIENE.

1. What precautions should be taken to prevent the spread of the following diseases: Smallpox, scarlet fever, diphtheria, erysipelas and puerperal fever? 2. What are bacteria, and how are they classified as to shape? 3. What are spores and what is their relation to contagion? 4. How should a house be disinfected after having been occupied by a case of scarlet fever or smallpox? 5. Mention the different ways by which the germs of typhoid fever are carried. How would you prevent the spread of this disease? 6. Where is the danger from pulmonary tuberculosis patients, and how prevented? 7. How is malaria and yellow fever contracted and how prevented? 8. Give the cause, source and prevention of trichinosis. 9. What is the best way of purifying contaminated drinking water? 10. What is the best way of disinfecting personal and bed linen, carpets, rugs, etc.?

PHYSIOLOGY.

1. Explain the mechanism of respiration. 2. (a) What is tidal air; (b) complemental and residual air, and (c) reserve air? 3. How is the normal constant temperature maintained? 4. Give the function of the first, second, tenth and twelfth cranial nerves. 5. Name the intestinal glands, their respective locations and functions. 6. Name the chief constituents of normal urine. Give the specific gravity and reaction. 7. Describe the process of blood coagulation. 8. Give the chief function of the sympathetic nervous system. 9. What is the meaning of the term inhibition? 10. Describe the salivary glands and give their functions.

MATERIA MEDICA AND THERAPEUTICS.

1. Give the physiologic action and therapeutic uses of aconite. 2. Name the preparations and doses of (a) iron, and (b) phosphorus. 3. Physiologic action and therapeutic application of ergot. Give contraindication for its use. 4. Write a prescription for epilepsy. 5. Give the physiologic action and therapeutic uses of cinchona. 6. What is henbane? Give its physiologic action. 7. Give the indications for hydrarg-chlorid mit., and its physiologic action. 8. Give the doses of the following: Atropin sulph.; strychnin sulph.; codein sulph.; nitroglycerin and apomorphin. 9. Give the dosage of diphtheria antitoxin; indications and frequency of use, and the method of administration. 10. Give the dose and therapeutic use of chloral hydrate.

HISTOLOGY.

1. Describe the structure of fatty tissue. 2. How does the wall of an artery differ from that of a capillary? 3. Give the structure of serous membranes. 4. What is a neuron, and of what is it composed? 5. Describe the structure of the salivary glands. 6. Describe the structure of the mucous membrane of the stomach. 7. Describe the muscular coat of the intestine. 8. Name the membranes of the spinal cord and describe one of them. 9. In what portions of the body is columnar epithelium found? 10. Mention the varieties of connective tissue.

PATHOLOGY.

1. What lesions take place in cerebral hemorrhage? 2. In what diseases of the liver is that organ enlarged? 3. What pathologic lesions cause the inguinal glands to enlarge? 4. In what disease do pleural effusions occur? 5. What is an embolus and a thrombus? 6. Ascites may occur in what pathologic conditions? 7. Give pathology of typhoid fever. 8. Give pathology of chronic malaria. 9. In what diseases are the number of leucocytes decreased? 10. Give pathology of interstitial nephritis.

CHEMISTRY.

1. Distinguish chemically between hard and soft water. 2. Define pasteurization: modified milk (laboratory). 3. Give the

Fahrenheit and the centigrade of (1) freezing point; (2) the boiling point. 4. Define fermentation, decomposition or putrefaction. 5. Explain the difference between a galvanic and a faradic battery. 6. How do chemical antidotes and physiologic antidotes differ in action? Illustrate. 7. State the principle underlying the use of antitoxin for the prevention or cure of disease. Why is it not given by the mouth? 8. Define ptomaines, leucomaines, toxins. 9. What is the chemical name for Glauber's salts, Monsell's salts, tartar emetic, cream of tartar, sugar of lead, copperas, vinegar, verdigris, soot, blue vitrol, common table salt? 10. Define chemistry, cohesion, adhesion. Mention the three chemical states of matter.

MEDICAL JURISPRUDENCE.

1. What degree of insanity should obtain before legal restraint is invoked? 2. There are two kinds of malpractice. Name and define them. 3. Differentiate dipsomania and alcoholism. 4. At what period of uterine life does the fetus become viable? 5. Give in detail the evidences of a recent rape. 6. Give in detail the evidences of a recent delivery. 7. Define criminal abortion. 8. Differentiate lunacy and idiocy. 9. Discuss the evidences of a live birth, subsequent to respiration. 10. State the conditions which justify embryotomy.

PRACTICE OF MEDICINE.

1. Describe briefly influenza. Give its treatment and mention the danger signals of the disease. 2. Give the diagnosis, varieties and treatment of tapeworm. 3. Give the differential diagnosis of an early case of typhoid fever, and remittent malarial fever. 4. Give detailed treatment of pulmonary hemorrhage and likewise a hemorrhage from the bowels in typhoid fever. 5. Mention the varieties of anemia; diagnosis and treatment of each. 6. Give the treatment for the first stage of tuberculosis of the lungs, and mention the diseases with which it might be mistaken. 7. Briefly outline the forms and general treatment of epilepsy, and give the general treatment of the disease. 8. Describe the symptoms of a case of erysipelas, and give the treatment. 9. Give in detail the treatment of acute diarrhea. 10. Give the differential diagnosis of yellow fever, bilious remittent malarial fever and dengue fever, and outline what should be done with the patient until the diagnosis has been made.

OBSTETRICS.

1. Define the science and art of obstetrics. 2. (a) At what period of pregnancy does hyperemesis (pernicious vomiting) begin? (b) How many stages, and what are their characteristics? (c) Give the prognosis and treatment. 3. What articles should occupy the obstetric bag? Describe the use of each, and what articles should be provided at the house of the patient that may be required during labor and delivery? 4. (a) Between what two points are the diameters of the fetal head taken, and what do they measure? (b) What alteration of the diameters of the fetal head occurs during labor? 5. What is hydrocephalus, its cause and diagnosis? (b) Does it interfere with labor; if so, how? (c) What are the indications in treatment? 6. What are the causes of delayed labor, and how is it treated? What is the prognosis to mother and child? 7. (a) What is the differential diagnosis between true and false labor pains? (b) Give the cause and treatment of false pains. 8. (a) How many acts are included in applying the forceps? (b) What are the rules governing the introduction of the blades? (c) What are the rules and precautions governing the locking of the blades? (d) How is traction made, and what precautions are necessary in the operation? 9. (a) What are the causes and treatment of prolapse of the cord? (b) What significance is there in a prolapsed cord? 10. (a) What is cesarian section? (b) What are the indications for its use? (c) Describe the operation.

GYNECOLOGY.

1. What is the status of professional opinion of the present day in regard to the influence of heredity on uterine and ovarian disease? 2. (a) To what extent is electricity used in gynecology? (b) For what disease? (c) What varieties of the electrical current, what strength, and length of time at each application? 3. Describe the anatomy of pudenal hernia, the contents of the sac; symptoms and methods of treatment. 4. Describe the anatomy of the perineal body; its function, and importance of repair if lacerated. 5. (a) What are the causes and symptoms of displacements of the vaginal walls? (b) Describe the methods of treatment of the same. 6. (a) Give a detailed statement of the general subjective symptoms of uterine diseases. (b) Do such diseases ever affect the nervous system; and, if so, describe the manifestations. 7. Give the relative frequency, etiology, pathology, symptoms and differential diagnosis of sarcoma of the breast. 8. State the causes and symptoms of prolapse of the ovary, and give the treatment of same. 9. What is pelvic hematoma? Describe its anatomy, etiology, diagnosis, prognosis and treatment. 10. Give the etiology, pathology and symptoms of fibroid tumors of the uterus, with differential diagnosis from ovarian cysts.

SURGERY.

1. What prerequisites are necessary to becoming a successful surgeon? 2. What should govern a surgeon in point of election in amputation below the elbow joint? Below the knee? 3. What do you understand by surgical anesthesia? 4. What are the principal dangers in administering chloroform? Ether? 5. What tissues would be cut through in entering the abdominal cavity at McBurney's point? 6. Describe the operative procedure in appendectomy. 7. How differentiate hydrocele and varicocele? 8. The most approved operative procedure for either? 9. A man received a pistol shot through the arm, about two inches above elbow near the inner border of biceps muscle, piercing a blood vessel—to stop the bleeding, which was profuse, some near by friends corded the arm tightly above the wound; the bleeding continued; man almost exsanguinated. What vessel was wounded, and how would you stop the blood? 10. Describe Colle's fracture, and how to treat it.

EYE, EAR, NOSE AND THROAT.

1. What is ophthalmia neonatrum? Cause and treatment? 2. What is a cataract? Soft? Hard? 3. Given a man with hard cataract in each eye, what should be the extent of operative work primarily, and why? 4. Give cause and treatment of acute suppurative otitis media. 5. How differentiate diphtheria and pseudodiphtheria or tonsillitis?

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 30, 1904:

Gardner, E. F., deputy surgeon general, under orders for examination by an Army retiring board, to meet at Atlanta, Ga.

Church, James R., asst.-surgeon, sick leave of absence extended two months.

Bevens, James L., asst.-surgeon, assignment to duty at Fort H. G. Wright, N. Y., suspended until conclusion of the Army maneuvers at Manassas, Va.

Ford, Clyde S., asst.-surgeon, assignment to duty at Fort Barrancas, Fla., suspended until completion of the Army maneuvers at Manassas, Va.

Snyder, Henry D., surgeon, relieved from duty at Plattsburg Barracks, N. Y., and ordered to Fort Sam Houston, Tex., for duty.

Woodruff, Chas. E., surgeon, relieved from further duty in Philippines Division, and on expiration of present sick leave ordered to Plattsburg Barracks, N. Y., for duty.

Gandy, Chas. M., surgeon, detailed to attend encampment Michigan State Militia, to be held at Ludington, Mich.

Eastman, William R., asst.-surgeon, leave of absence extended thirty days.

Billingslea, C. C., asst.-surgeon, relieved from further duty in Philippines Division and assigned to duty at U. S. Army General Hospital, Presidio of San Francisco, on Aug. 1, 1904.

Edger, Benjamin J., Jr., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and ordered to Fort Brown, Tex., for duty.

Humphreys, H. G., asst.-surgeon, reported for duty at Fort Totten, N. Y.

Brown, Henry L., asst.-surgeon, reported for duty at Columbus Barracks, Ohio, as assistant surgeon, U. S. Army.

Freeman, Paul L., asst.-surgeon, reported for duty at Fort Slocum, N. Y.

Purviance, William E., asst-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Straub, Paul F., asst-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Porter, Ralph S., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Dean, Elmer A., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Bratton, Thomas S., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Marrow, Charles E., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Brown, Henry L., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Bourke, James, asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Reno, William W., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Palmer, Fred. W., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Shook, Jay R., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Edwards, James F., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Keller, William L., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Field, Peter C., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Roberts, William M., asst.-surgeon, designated for duty at Army maneuvers to be held at Manassas, Va., Sept. 1 to 21, 1904.

Waterhouse, S. M., asst.-surgeon, promoted captain and assistant surgeon, U. S. Army.

Tignor, Edwin P., contract dental surgeon, returned to duty at Fort Riley, Kan., from leave of absence.

Prebert, Merton A., contract surgeon, returned to Fort Crook, Neb., from duty at Department target range, Omaha Agency.

Truax, Jesse P., contract surgeon, granted leave of absence for one month from Fort Wright, Washington.

Mabry, William C., contract surgeon, left Fort Sheridan, Ill., to attend the Second Battalion, Twenty-seventh Infantry, in camp with the Indiana National Guard.

Love, Joseph W., contract surgeon, granted an extension of one month to his present leave of absence from the Philippines Division.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending July 30, 1904:

Furlong, F. M., P. A. surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the *Chicago*.

Farwell, W. G., asst.-surgeon, ordered to the naval recruiting rendezvous, Boston.

Murphy, J. F., asst.-surgeon ordered to the *Hancock*, temporarily.

Barber, G. H., surgeon ordered to the *Hist* and to additional duty at the Naval Training Station, Newport, R. I.

Butler, C. S., P. A. surgeon, detached from the *Constellation* and ordered to the Naval Training Station, Narragansett Bay, R. I., and duty on the *Hist*.

Cather, C. D., asst.-surgeon, ordered to the Naval Hospital, New York, N. Y.

ORDERS ISSUED BY COMMANDER-IN-CHIEF OF ASIATIC FLEET.

De Bruler, J. P., asst.-surgeon, Subig Bay Naval Reserve, P. I., to *El Cano*.

Mayers, G. M., asst.-surgeon, *El Cano* to *Raleigh*.

Moore, J. M., P. A. surgeon, *Raleigh* to home.

Marine-Hospital Service.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the two weeks ended July 28, 1904:

Bailhache, Preston H., surgeon, seven days' leave of absence from July 17, 1904, under Paragraph 189 of the Regulations.

Mead, F. W., surgeon, granted leave of absence for one month from August 1.

White, J. H., surgeon, granted extension of leave of absence for three days from July 18.

Clark, Taliaferro, P. A. surgeon, relieved from duty at Ellis Island, N. Y., and directed to proceed to Philadelphia and report to medical officer in command for assignment to exclusive duty in connection with examinations of aliens.

Hobdy, W. C., P. A. surgeon, granted leave of absence for twenty-four days from July 26.

Ramus, Carl, P. A. surgeon, relieved from duty at San Francisco and directed to proceed to Honolulu, T. H., and report to chief quarantine officer for duty, relieving Asst.-Surgeon R. L. Wilson.

Stansfield, H. A., P. A. surgeon, relieved from duty in the Hygienic Laboratory and directed to report to the chairman of the Isthmian Canal Commission for duty on the Isthmus of Panama.

Wilson, R. L., asst.-surgeon, on being relieved at Honolulu, T. H., by P. A. Surgeon, Carl Ramus, to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty.

Harris, B. Y., A. A. surgeon, granted leave of absence for thirty days from August 1.

Tappan, J. W., A. A. surgeon, department letter of July 6, 1904, granting leave of absence for thirty days from July 10, amended to read thirty days from August 24.

Todt, W. C., A. A. surgeon, granted leave of absence for fourteen days from July 15.

Walker, R. T., A. A. surgeon, granted leave of absence for four days from July 26.

Macdowell, W. F., pharmacist, granted leave of absence for thirty days from August 8.

Ryder, L. W., pharmacist, granted leave of absence for thirty days from August 15.

Watters, M. H., pharmacist, granted leave of absence for twenty-five days from August 15.

Glennan, A. H., assistant surgeon general, granted leave of absence for fifteen days from August 1.

Irwin, Fairfax, surgeon, granted leave of absence for one month from August 15.

Kalloch, P. C., surgeon, granted leave of absence for twenty-two days from August 1.

McIntosh, W. P., surgeon, to assume temporary charge of Portland (Me.) Quarantine, in addition to other duties, during the absence on leave of Surgeon P. C. Kalloch.

Guiteras, G. M., surgeon; Bureau letter of July 11, 1904, granting Surgeon Guiteras leave of absence for seven days from July 14, 1904, amended to read four days only.

McMullen, John, P. A. surgeon, granted leave of absence for one month from August 5.

Glover, M. W., asst.-surgeon; Bureau telegram of July 13, granting Assistant Surgeon Glover leave of absence for seven days on account of sickness, amended to read five days from July 12.

Ward, W. K., asst.-surgeon, to proceed to Bridgeton, Barbadoes, B. W. I., for duty in office of the United States Consul.

Stiles, Ch. W., zoologist, detailed to represent Service at Sixth International Congress of Zoology at Berne, Switzerland, August 14 to 19.

Seavey, L. T., acting assistant surgeon, granted leave of absence for fourteen days from August 8.

Smith, Emma F., medical inspectress, granted leave of absence for thirty days from July 1.

BOARD CONVENED.

Board to meet at the Marine Hospital, Stapleton, N. Y., July 18, 1904, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: P. A. Surgeon A. C. Smith, chairman; P. A. Surgeon, J. B. Green, recorder.

Board to meet at Washington, D. C., Aug. 1, 1904, for the physical examination of an officer of the Revenue-Cutter Service, and an applicant for admission into Service. Detail for the board: Assistant Surgeon General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

PROMOTION.

Stansfield, H. A., asst.-surgeon, commissioned P. A. surgeon, to rank as such from June 4.

Spangler, L. C., pharmacist of the third class, promoted to be pharmacist of the second class, effective May 28.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service during the week ended July 29, 1904:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, July 16-23, 1 death.
Illinois: Chicago, June 16-23, 4 cases; Danville, 1 case.
Iowa: Clinton, July 8-16, 1 case.
Kentucky: Covington, July 16-23, 1 case.
Louisiana: New Orleans, July 16-23, 1 case, imported.
Massachusetts: Fitchburg, July 16-23, 1 case.
Michigan: Detroit, June 16-23, 1 case.
Missouri: St. Louis, July 16-23, 5 cases.
New York: New York, July 16-23, 2 cases.
Ohio: Cincinnati, July 8-15, 2 cases.
Pennsylvania: McKeesport, July 16-23, 1 case; Williamsport, 1 case.
Tennessee: Memphis, July 16-23, 1 death.
Wisconsin: Milwaukee, July 8-23, 3 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, May 7-June 4, 19 cases, 5 deaths

SMALLPOX—FOREIGN.

Belgium: Brussels, July 2-9, 1 death.
Brazil: Pernambuco, June 1-15, 24 deaths.
China: Hong Kong, May 28-June 11, 7 cases, 1 death; Shanghai, June 4-11, 3 deaths.
France: Paris, June 25-July 9, 20 cases, 2 deaths.
Great Britain: Edinburgh, July 2-9, 1 death; Glasgow, July 8-15, 11 cases, 2 deaths; London, July 2-9, 10 cases; Nottingham, 3 cases.
India: Bombay, June 21-28, 17 deaths; Karachi, June 19-26, 2 cases.
Japan: Nagasaki, June 1-20, 4 cases, 3 deaths.
Netherlands: Rotterdam, July 8-16, 1 case.
Panama: Panama, July 11-18, 1 case, 1 death.
Turkey: Constantinople, June 27-July 3, 7 deaths.

YELLOW FEVER.

Costa Rica: Limon, July 8-16, 1 case.
Mexico: Merida, July 3-9, 4 cases; Tehuantepec, 6 cases, 1 death; Vera Cruz, July 9-16, 4 cases.

CHOLERA.

China: Hongkong, May 28-June 11, 13 cases, 11 deaths.
India: Bombay, June 21-28, 1 death.

PLAGUE—INSULAR.

Hawaii: Hilo, July 21, 1 death.
Philippine Islands: Cebu, May 25, 1 death; Manila, May 7-June 4, 12 cases, 12 deaths.

PLAGUE—FOREIGN.

Australia: Brisbane, June 11-18, 1 case; Maryborough, June 3, 1 death; Sydney, June 6, 1 death.
China: Hongkong, May 28-June 11, 83 cases, 83 deaths.
India: Bombay, June 21-28, 48 deaths; Karachi, June 19-26, 3 cases, 3 deaths.

Society Proceedings.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

Academy of Ophthalmology and Otolaryngology, Denver, August 24-26.
Medical Society of the Missouri Valley, Council Bluffs, Iowa, August 25.
Oregon State Medical Association, Portland, August 30-31.
Wyoming State Medical Society, Rawlins, September 13.
American Association of Obstetricians and Gynecologists, St. Louis, September 13-16.
American Electro-Therapeutic Ass'n., St. Louis, September 13-15.
Medical Society of the State of Pennsylvania, Pittsburg, September 27-29.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

Minutes of the Fourteenth Annual Meeting, held at Atlantic City, N. J., June 6, 1904.

(*Continued from p. 347.*)

AFTERNOON SESSION.

The association reassembled at 2 p. m., and was called to order by the president.

The chair appointed the following nominating committee: Drs. Winslow, Ingals and Ward.

The roll call was taken, and the following colleges (44) were represented by delegates:

Arkansas University Medical Department: J. A. Dibrell.
Denver and Gross College of Medicine: T. H. Hawkins.
Yale University Medical Department: H. E. Swain.
Georgetown University Medical Department: G. M. Kober.
Columbian University Medical Department: W. R. Phillips.
Howard University Medical Department: D. S. Lamb.
American Medical Missionary College: J. H. Kellogg.
College of Physicians and Surgeons, Chicago: D. A. K. Steele.
Illinois Medical College: H. H. Brown.
Rush Medical College: E. F. Ingals.
Central College of Physicians and Surgeons: J. F. Barnhill.
Medical College of Indiana: H. Jameson.
Drake University College of Medicine: D. S. Fairchild.
College of Medicine University of Iowa: J. R. Guthrie.
Keokuk Medical College, College of Physicians and Surgeons: G. R. Jenkins.
School of Medicine University of Kansas: G. H. Hoxie.
Kansas Medical College: H. L. Alkire.
Hospital College of Medicine: P. R. Taylor.
Kentucky School of Medicine: W. H. Wathen.
University of Louisville Medical Department: J. M. Bodine.
Kentucky University Medical Department: T. C. Evans.
Flint Medical College: H. J. Clements.
Baltimore Medical College: D. Streett.
Baltimore University School of Medicine: H. H. Biedler.
College of Physicians and Surgeons: Chas. F. Bevan.
University of Maryland School of Medicine: R. D. Coale.
College of Physicians and Surgeons, Boston: C. M. Cobb.
College of Medicine and Surgery University of Minnesota: A. J. Stone.
University of Missouri Medical Department: W. Moss.
Kansas City Medical College: F. J. Hall.

University Medical College of Kansas City: S. C. James.
J. A. Creighton Medical College: F. E. Coulter.
University of Nebraska College of Medicine: H. B. Ward.
University of Buffalo Medical Department: E. H. Long.
University of North Carolina Medical Department: R. H. Whitehead.
Wake Forest College Medical Department: F. K. Cooke.
Western Reserve University Medical College: J. H. Lowman.
Ohio Medical University: W. J. Means.
Medico-Chirurgical College of Philadelphia: S. Egbert.
Woman's Medical College of Philadelphia: C. Marshall.
Meharry Medical College: G. W. Hubbard.
University College of Medicine: J. A. Hodges.
Milwaukee Medical College: W. H. Earles.
Wisconsin College of Physicians and Surgeons: A. H. Levings.

The minutes of the New Orleans meeting, as printed in the proceedings, were accepted, with the following corrections: (1) That the name of Dr. Chas. F. Bevan be inserted as representing the College of Physicians and Surgeons of Baltimore, in place of C. F. Brown. (2) That the following words, omitted from Section 5, on page 18, be inserted: "annual course to have been of not less than seven months' duration."

Report of the Special Committee on By-Laws.

The report of this committee being called for, Dr. Wm. H. Wathen, in the absence of the chairman, Dr. Ritchie, offered the following report:

Your special committee on the revision of the constitution begs to offer the following report:

1. We were instructed to formulate and present a plan for the "Unification of Medical Teaching." To say nothing of the magnitude of the undertaking, and the difficulty of enforcing its provisions, the uncertain and diverse attitudes of the various state examining boards, in the opinion of your committee, make it unwise and impolitic to attempt anything at this time.

2. Article III of the constitution, as revised and adopted at New Orleans, to take effect July 1, 1905, provides (Sec. 4.) that seven months shall be the minimum length of an annual session. By a clerical or typographical error, that part of the sentence relating to the length of the term was omitted from the printed report. As in a number of the states the examining boards do not recognize a six months' term, we urge this association to make the minimum seven months' term operative July 1, 1904.

3. It is manifest to every member of this association that the loose methods of earlier administrations in the admission to membership, permitted the entrance of schools badly equipped for teaching medicine, and some of them wholly disqualified. At the New Orleans meeting the report and recommendations of the secretary-treasurer was "accepted as read." He recommended that $400 annually be set apart to pay the expenses of the new secretary in visiting the schools, in person or by proxy, and that he be instructed to "make a detailed study and report" to this association as to their equipment and fitness to teach. With the approval of the chairman of the judicial council, the secretary visited and inspected several schools before it was discovered that the appropriation had not been specifically made, and the work was discontinued.

Your committee urge the importance of this work, and recommend the creation of a "committee on visitation," to be composed of the president, secretary and chairman of the judicial council, whose duty it shall be to see that all schools which are members of this association be visited and investigated by a member of this committee, or by some individual designated by this committee.

If any school or schools shall, in the judgment of this committee, be found not to possess the qualification necessary to membership in this association, they shall present a detailed report on the same.

It is recommended that an appropriation be made for the expense of this committee, of a sum not to exceed $400 annually.

To avoid future embarrassment, it is advised that the same committee be directed to visit and investigate, at the expense of the applicant, any school which may propose to become a member of this body, and report results to the judicial council.

If a plan of visitation shall be undertaken by the American Medical Association, or the National Confederation of Examining Boards, or both, the above committee is authorized to confer with the representatives of these organizations in order to devise a suitable scheme of college visitation which shall be satisfactory to all three associations.

4. The section of the president's address in relation to the "transfer of students," is so clear and comprehensive that we quote it in its entirety: "While the constitution is clear enough as to the privileges of members to deal with students of other schools at the beginning of a session, it has nothing to say on the important question of transferring students in the midst of a term. Undoubtedly this is a subject demanding attention. It is a practice to be discouraged in the main, for nearly always the student wishes to change schools during a term, for reasons selfish and discreditable to himself. Occasionally the right is on his side, and if his record has been good, if all reasonable requirements have been met, and the dean will so certify, there is no just ground for refusing him admission to the same class in another school. It should be made impossible, however, for any work of importance, didactic, clinical or laboratory to be evaded."

Your committee urge the adoption of a rule that no member of this association shall admit a student from another school into advanced standing unless he presents a letter of honorable withdrawal or dismissal from that institution signed by the dean or secretary.

(Signed.) PARKS RITCHIE,
JOHN M. DODSON,
WM. H. WATHEN (per Ritchie),
(except last paragraph.

I suggest the following as a substitute for the closing paragraph of above report: "That no member of this association small admit a student to advanced standing except on the presentation of examination credits officially signed by the school in which such student attended lectures, and that no time credit shall be allowed for any credential that does not embrace the work of an entire year—freshman, sophomore, junior and senior—in continuous months."

(Signed.) WILLIAM H. WATHEN.

Dr. Wathen then offered the following supplemental minority report as an amendment of Article 3, Section 4:

They shall admit no student to advanced standing except on the presentation of examination credits officially signed by the school in which the student attended lectures, and no time credit shall be allowed for any credential that does not embrace the work of an entire year—freshman, sophomore, junior or senior in seven continuous months.

On motion, both these reports were considered *ad seriatum*.

The first section of the report was then read.

Inasmuch as this portion of the report was disposed of by the resolution contained in Dr. Kober's paper, and adopted by the association, no further action was taken.

The second section was then read.

Dr. Kober moved its adoption. The motion was lost.

The third section was then read.

Dr. Seneca Egbert moved the adoption of this section, and that an appropriation of $400 be made to defray the expenses of the visitation committee for the coming year. Seconded and carried.

The final section of the report was then read.

Dr. Wathen submitted, as a substitute for the above, a minority report, as follows:

They shall admit no student to advanced standing except on the presentation of examination credits officially signed by the school in which the student attended lectures, and no time credit shall be allowed for any credential that does not embrace the work of an entire year—freshman, sophomore, junior or senior in seven continuous months.

Dr. Wm. J. Means moved the adoption of the majority report. Seconded.

Dr. David Streett moved, as a substitute, that the minority report be adopted. Seconded.

Dr. Seneca Egbert offered the following substitute: "That after September, 1904, no member of this association shall admit a student to advanced standing without first communicating with the college from which such student desires to withdraw, and receiving from the dean of said college a direct written communication certifying to the applicant's professional and moral qualifications, and to the exact work he has done in said college."

Seconded and carried.

The following amendment to Article 3, Section 6, offered by Dr. Wm. Wathen, was then read:

They shall give no advanced standing or time credit for a bachelor's degree, or a degree in pharmacy, dentistry or veterinary surgery, but may give credit for work successfully completed in any subject included in the freshman year, the student then being permitted to study in addition to the required branches, such elective branches as the college may allow.

Dr. E. F. Ingals moved that the amendment be laid on the table. Seconded and carried.

Dr. Wathen then offered the following amendment to Article 3, Section 8:

Colleges of the Association of American Medical Colleges shall have but one annual session, at the beginning of which all students shall be matriculated, and at the close of which students may be examined for advancement to a higher grade, or, in the senior year for the degree of doctor of medicine.

Dr. T. C. Evans moved that this amendment be laid on the table. Second and carried.

(To be continued.)

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

Regular Meeting, held in Philadelphia, April 11, 1904.

Dr. Charles A. Oliver in the Chair.

Symposium on Diseases of the Conjunctiva.

DR. H. C. GOLDBERG showed the microscopic appearances of the invaded structures in diphtheritic conjunctivitis and differentiated them from those seen after gonorrheal conjunctivitis. He believed that the streptococcus is, as a rule, responsible for the gross changes seen in the diphtheritic types of conjunctival disease. He showed the relative effects of benign and malignant tumors on the membrane, contrasting these in their differences. He exhibited the behavior of various granulomata, and gave a résumé of the condition of the conjunctival structures in a case of perforating panophthalmitis as one of the results of endogenous infection from typhoid bacilli. He said that there was little known of the difference in the histology between diphtheritic and pseudomembranous conjunctivitis, the Klebs-Loeffler and xerosis bacilli being so much alike morphologically as to make their differentiation difficult, and spoke at some length on the relative actions of the various antitoxins.

DR. FRANK FISHER had found that by a constant repetition of similar cases he had been enabled to differentiate clinical signs which he had learned to treat and manage by definite and well-gauged rules, one of which had been the free use of saturated solutions of chlorate of potassium in diphtheritic and so-called pseudomembranous conjunctivitis. He had found that if this drug is used in such cases there is less danger of corneal involvement, and that there are fewer cicatrices left in the conjunctival membrane. In association with the drug, and in combination with warm applications and the use of mild detergents locally, he made free internal use of the tincture of the chlorid of iron. He stated that he had found that the application of nascent silver salts was not of any benefit in cases of diphtheritic conjunctivitis, and had noticed that the cicatrices following diphtheria of the conjunctiva resembled a condition of cirrhosis. He classified pseudomembranous conjunctivitis and diphtheritic conjunctivitis together. He always treated diphtheria of the conjunctiva systemically as well as locally. He believed trachoma to be nothing more than the excessive stages of ordinary follicular conjunctivitis, trachoma being a second or tertiary stage of true granular conjunctivitis—a condition in itself in which there is more or less atrophy of the follicles. In these cases there are, he believed, all of the sequelæ of repeated inflammation, such as contraction and distortion of the lid, nebular pannus, and dry, hardened or greasy remains of the conjunctival membrane. In true trachoma he took care to express all of the follicles in the conjunctival sulcus, preferably by the finger nails, following this procedure by the use of tannin, boroglycerid and silver. He believed that dilation of the lacrymal canals and ducts was useful in offering better drainage for the vitiated secretions. Empirically, he had become favorably impressed with the results that he had obtained by the judicious use of alum in the late stages of gonorrheal conjunctivitis, and also employed solutions of acetate of zinc, chlorid of zinc, biborate of soda and boracic acid. He had used adrenalin, but did not find its employment of any advantage.

DR. S. LEWIS ZIEGLER'S experience in acute conjunctivitis had been that the more simple and the less irritating the application the more quickly good results were obtained. As a rule, he employed four- or five-grain solutions of silver nitrate for the first application only, followed by such drugs as glycerol of tannin, boroglycerid and argyrol. These should be used *ad seriatim*, as all local applications sooner or later lose their effect and must be changed. He had found the best results from the employment of biborate of soda and boric acid in simple solutions. If the mucopus persists, alum, one to four grains to the ounce, will be most efficient. The acetate of zinc is of value when the convalescence is slow. In the chronic forms of the disease, such as trachoma, he had had recourse to rapid dilation of the lacrymal passages, together with intranasal applications. In the purulent forms of conjunctivitis he made a daily application of a ten-grain silver nitrate solution, neutralized by salt and washed off with boric acid solution. He used mercuric bichlorid (two grains to the pint) for irrigation in the early stages, every fifteen minutes to a half hour, day and night, until the acute stage is past, and applied ice pads constantly.

DR. P. N. K. SCHWENK said that his experience had been that all cases must be treated empirically. In simple cases he used weak solutions of nitrate of silver, boracic acid and biborate of soda. Believing in the identity of granular conjunctivitis and trachoma, he resorted to similar treatments, modified to suit the existent conditions. Empirically, he had found the use of boroglycerid of great value in the treatment of diphtheritic conjunctivitis.

DR. CHARLES A. OLIVER stated that the majority of cases of conjunctival disease were microbic in type, the clinical signs being in definite relationship with the amount of reaction to the preponderant acting germ. He considered that every ordinary conjunctiva, no matter how well cared for hygienically, was a harboring place for germ life; in fact, he considered that the membrane was, by this reason, kept in better condition and made better able to withstand the attacks of injurious forms of bacteria. He explained the difference between the scavenger types of germs and the serum-consuming varieties, and showed how the anatomic relationships and peculiarities of structural formation rendered it more difficult for certain forms of bacterial growth to gain access to favorable nesting grounds. He subdivided conjunctival disease in strict accordance with the clinical manifestations of the prevalent germs, and was thus able, by repeated bacteriologic study during the course of the disease to so regulate his therapy as to give the quickest and the best possible results in any given case. He emphasized the relationship of the state of the patient's general health to the conjunctival condition at hand, this being particularly true in the gross forms of disease—for example, in Klebs-Loeffler bacillus conjunctivitis, in which he had obtained the most brilliant results by the early use of subconjunctival injections of antidiphtheritic serum.

He had come to the conclusion that all conjunctival diseases are primarily the results of mixed infection, one or more types of germ life gaining the ascendency and giving the clinical peculiarities to the individual case. In the destruction of the parts, he had found that it was not the prevalent microbe which destroyed the organ, but that the particular microbic invasion so reduced the protective agents in their activities as to allow them to become the prey of the pyogenic forms of bacteria. He stated that it should not be forgotten how certain types of germs, being in an involutional state from their ancestral forms, having become exhausted in different mucous soils, if placed in a new, fresh soil, such as the conjunctiva, would soon have their successors become virulent in action (coarse gonococcal conjunctivitis). Conversely, from experiments and studies that he had made, he had found that gross forms of gonococci flourishing in a good soil would, when placed in previously used and hence partially barren soils, soon become involutional in condition, ofttimes monstrous in form and negative in action.

He descried the term "granular conjunctivitis," believing the conjunctival inflammation merely secondary to reactions in the underlying microbic nestings of vegetable life with destruction of the adjacent faunal cells, resulting in cicatricial contraction and loss of the involved parts. He showed why the conjunctiva of the infant is less liable to injury from gonococci than that of the adult, giving a series of illustrative cases for explanation. He cited several examples occurring in the eye wards of the Philadelphia and Presbyterian hospitals which well illustrated these differences.

DR. L. E. MARTER spoke of the injurious effects of chlorate of potash if used in too great amounts. He gave a most interesting account of his experiences with the employment of varying strengths of solutions of permanganate of potassium in the different types of conjunctivitis, and inquired if the experience of the other members had been similar with that of his.

DR. SAMUEL H. BROWN said that almost constant success was had in the treatment of chronic cases of trachoma in the clinic of Dr. Conrad Berens by the use of 50 per cent. strengths of boroglycerid. Incidentally, he had seen most favorable results in such cases from the local employment of graduated dosages of adrenalin, having found this drug a most excellent adjuvant.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held June 28, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Report of a Case of Splenomedullary Leukemia Treated for Nine Months by the X-Ray.

DR. W. F. CHENEY saw the patient first in August, 1903. Eighteen months previously the patient noticed that he was pale, weak, and short of breath on exertion, and a diagnosis of leukemia was made by a competent observer at that time. In September, 1902, he suffered from severe pain in the right side, which kept him in bed for about a week. In July, 1903, he had two profuse hemorrhages from the nose. Examination of the patient revealed some fluid in the abdominal cavity, and a very large spleen, which extended 12 cm. below the level of the umbilicus and 5 cm. to the right of the median line. On August 6 the blood examination showed 220,000 leucocytes, and on September 2 141,000, of which 45 per cent. were myelocytes. Although he had been variously treated with arsenic, quinin, and mineral baths from the time that his disease was first recognized, he had steadily lost ground, and it seemed as if he did not have long to live.

On October 1 the blood examination was as follows: red corpuscles 2,508,000; white corpuscles, 126,000; hemoglobin 47 per cent. *X*-ray treatment was begun on this date, and all other modes of treatment were discontinued. Every day, or every other day, the patient was exposed to the radiations from a low vacuum tube, placed about 10 inches from the body, for from 12 to 15 minutes. As a rule the splenic tumor was the part exposed, but if any redness of the skin developed, the long bones were exposed. The treatment was twice interrupted on account of a dermatitis. In all 144 applications have been made since the treatment was begun, nine months ago. The general condition of the patient has improved marvellously. After two months he returned to work, and he says that he now feels perfectly well. The size of the spleen has not diminished to any appreciable extent. The blood has improved, but it is by no means normal. The red corpuscle count rapidly rose to 4,000,000, and has remained at or above this level. The nucleated red corpuscles have disappeared. The leucocytes have been as low as 45,000, but at present ar 67,000, and the hemoglobin has remained at 70 per cent. or over since the first month of treatment. The myelocytes now make up 25 per cent. of the total number of leucocytes. Perhaps the most remarkable observation is the fact that when the *x*-ray treatment was discontinued on several occasions there was an increase in the number of leucocytes. Furthermore the most rapid improvement occurred during the early weeks, at which time the treatment was more energetic than it was later. It appears, therefore, that coincident with the use of the *x*-ray, there was a marked improvement in this case of leukemia. Whether the *x*-ray is capable of inducing a remission of the disease or whether the so-called cures are merely coincidences can only be proved by reports of further cases.

DISCUSSION.

DR. OLIVER, who made the blood counts on Dr. Cheney's case, said that it appeared as if the application of the *x*-ray to the long bones produced less effect than its application to the spleen. In the later counts there seemed to be some degenerative changes in the myelocytes. There was an increase in the number of basophiles.

DR. G. H. EVANS has recently reported three cases of leukemia before the state medical society. Two of these were treated by the *x*-ray. The first case showed 260,000 leucocytes at the onset, and his spleen reached to within 4/5 cm. of the umbilicus. After three or four months of daily treatment his spleen had receded under the costal margin, his leucocytes were 7,000, and the myelocytes had disappeared from the peripheral blood. The second case did not show such marked improvement in the blood or splenic tumor, but like Dr. Cheney's case the symptomatic improvement was striking, and the patient now feels perfectly well. The treatments were given daily for from 15 to 20 minutes with a medium-hard tube ten inches from the body. It is difficult to explain any benefit which may possibly arise from the application of the *x*-ray to the spleen, for the primary disease is supposed to be in the bone marrow.

DR. P. K. BROWN has also seen a case in which a remission was apparently induced by the use of the *x*-ray. Removal of the spleen in this disease should not be advised.

DR. G. BLUMER said it has been recently shown that the *x*-ray has a selective action on the blood-forming organs. Animals exposed to the *x*-ray show degenerative changes in the germinal centers of the lymphatic follicles, in the Malpighian bodies of the spleen, and to a lesser extent in the bone marrow and in the leucocytes. Other observers have shown that there is an increase in the output of nitrogen as a result of *x*-ray treatment.

DR. C. M. COOPER said that possibly the spleen produces an antitoxin and the production is stimulated by the use of the *x*-ray. If the coil fails, we should try the effect of the high frequency currents.

Aplastic Anemia.

DR. P. K. BROWN reported a case of acute fatal hemorrhagic purpura in an infant with anemia of the aplastic type. Aplastic anemias are rare, and only a few have been reported.

Infant 22 months old, living in unhygienic surroundings, began to be fretful nine days ago. Since then it has had fever and has become pale and weak. Purpuric eruption began four days ago, and has gradually spread over the skin and mucous membranes until there is not a square inch of skin free from the eruption. There is no enlargement of the spleen or liver and no tenderness of the long bones. Slight general lymphatic enlargement. No signs of rickets or lues. No eggs of parasites found in the stools. Blood examination: red blood corpuscles 1,280,000; leucocytes, 2,000; hemoglobin 20 per cent. Differential count showed 7 1/3 per cent. of polynuclears, 4 2/3 per cent. of large mononuclears, 88 per cent. of small mononuclears, and no eosinophiles. There were no nucleated red corpuscles. A second count on the next day gave similar figures. That evening the infant died, and an autopsy was refused.

In aplastic anemias there is a progressive diminution of the blood cells without any evidence of an attempt at regeneration, i. e., there are no nucleated red corpuscles, and no red marrow in the long bones, except near their epiphyses. It is possible that there are aplastic stages in the course of many pernicious anemias.

In this case the purpura and the anemia were both probably secondary to some common, possibly infectious, cause.

DISCUSSION.

DR. EVANS asked if the case might not have been an acute leukemia without increase in the total number of white cells?

DR. BROWN replied that acute lymphatic leukemia is characterized by the presence of a high percentage of large mono-

nuclear cells, whereas in the present case the majorty of the leucocytes were small mononuclears. Whoopng cough seems to be the only acute disease associated with a very great increase of the small mononuclear elements.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in everyday practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Pertussis.

Spitz, in the *Therapeutic Review*, gives a summary of many different remedies and modes of treatment of this disease. There are almost as many remedies advocated as there are physicians who treat whooping cough, and none are curative. Hare states that antipyrin given in doses of 1 to 3 grains every five hours will decrease the number of paroxysms, but not the severity of the attack. Kerley also believes that antipyrin administered internally controls the paroxysms better than any other drug. Quinin, according to Kerley, if given in sufficiently large doses, has a very good effect. Other well-known remedies suggested by various authors are belladonna, chloral hydrate, bromid of potassium, iodid of silver, salicylates, drosera rotundifolia in doses of from a fraction of a drop to 10 drops three times daily, each of which it is claimed will alleviate, but in no wise shorten the course of the disease.

TREATMENT BY INHALATIONS.

Grodson advises the inhalation of creosote from the very inception of the disease. A belladonna plaster between the shoulders he found useful in mild cases. Monti of Norway claims to have cut short the disease by disinfection of the room in which the patient lives with sulphurous acid. Everything with which the patient had come in contact was fumigated for six hours. The room was well aired, the patient put to bed covered with fresh linen. The following day the disease had disappeared.

Staedtler of Bern recommends a change of climate, but, since this is impossible in most cases, he advises inhalation in conjunction with internal remedies. The new preparation used by him is naphthalin (eucalyptol and camphor) under the name of vaporin, and has given excellent results. The preparation is not narcotic, the paroxysms are not immediately lessened, but its good effect is exercised directly on the respiratory tract.

Hlinske of Bohemia, who has had considerable experience in the use of formalin inhalations in the treatment of catarrhal conditions, as well as whooping cough, reports a case of pertussis where the patient was placed in a room with a lamp that evaporated four or five paraform tablets per 1,000 cubic feet of air space. She remained here for about one-half hour, and was then removed to a compartment which was disinfected by about 30 tablets to the 1,000 cubic feet. The only untoward symptoms noticed were apparent paleness and loss of appetite, and irritation of the eyes. The same night a decided improvement was noted, and a few days later the child had lost her cough entirely. Dr. Hlinske concludes that by the proper inhalation of formalin it is possible to destroy the germs of whooping cough, and that thorough disinfection of the living rooms of the patient with formalin, after inhalation, is sufficient treatment to frequently effect a cure.

Martindale suggests the following for pertussis:

℞ Bromoform ..... ℥ss 2
Tincturæ senegæ ..... ℥iiiss 14
Syrupi aurantii ..... ℥iv 15
M. et add:
Aquæ dest. q. s. ..... ℥vi 180
Sig.: Two to four teaspoonfuls at one dose.

The following formula has also been recommended:

℞ Heroin hydrochloratis ..... gr. ¼-½ 015-.03
Tincturæ belladonnæ
Spiritus frumenti, āā ..... ℥i 4
Syrupi simplici q. s. ad ..... ℥iv 120
M. Sig.: Teaspoonful every five or six hours.

Presse Médicale suggests the following for whooping cough:

℞ Syrupi belladonnæ ..... ℥i 2/3 50
Syrupi valerianæ
Syrupi digitalis, āā ..... ℥viss 25
M. Sig.: For children less than two years of age we prescribe half a coffeespoonful[1] and increase by a halfspoonful every second day till two coffeespoonfuls are taken daily. For children from two to five years of age the dose may be increased to six spoonfuls daily. This dose is sufficient for older children, and should be increased only if the cough is very intractable, in which case 75 to 150 minims may be added to the daily supply. The syrup may be given pure, or mixed with simple syrup or milk.

Sobel, in *Amer. Pract. and News*, reports his success in the treatment of the paroxysms of whooping cough after the plan proposed by Naegli of pulling the lower jaw downward and forward.

1. In most instances this procedure controls the paroxysms.
2. The method is more successful in older children than in younger ones and infants.
3. It prevents the whoop and generally overcomes the asphyxia.
4. Those in attendance should be instructed in its use.
5. The manipulation is harmless, painless and easy of application; it offers a maximum good effect with a minimum derangement.
6. The presence of food in the mouth or esophagus is a contraindication to its use.
7. Patients treated in this manner are less likely to suffer from complications and sequelæ than those treated only medicinally; there is less exhaustion and less emaciation because vomiting has been controlled.
8. It is particularly indicated in instances complicated with diffuse bronchitis, bronchopneumonia, convulsions, epistaxis, subconjunctival, or subcutaneous hemorrhage, or sublingual ulcer, and in those children who by virtue of tender age, the presence of rachitis, scrofula, or general debility are predisposed to serious complication and sequelæ.

Hordeolum (Stye).

Merck's Archives recommends the following:

℞ Acidi borici ..... ℥i 4
Muc. cydonii ..... ℥iss 45
Aqua rosæ (genuine) q. s. ad ..... ℥iv 120
M. Sig.: Apply freely lukewarm to the eye; or:
℞ Hydrargyr. oxidi rubri ..... gr. xii 75
Petrolati
Ung. aquæ rosæ, āā ..... ℥iv 15
M. Sig.: Apply night and morning after a thorough cleansing with hot boric solution.

If very distressing and involving much of the lid the stye should be incised, with full antiseptic precautions.

Toothache.

In the *Journ. des Pract.* the following suggestions are given for the country practitioner in the treatment of toothache in the absence of a dentist.

FOR CARIES.

℞ Tincturæ benzoin ..... ℥iiss 10
Olei caryophylli ..... ℥ss 2
M. Sig.: Apply to cavity on a small piece of cotton; or:
℞ Tincturæ benzoini ..... ℥iss 6
Chloroformi ..... ℥i 4
Acidi carbolici ..... ℥ss 2
M. Sig.: Use in same manner as the foregoing.

1. A coffeespoonful represents 5 milligrams (3/10 grain) of the alcoholic extract of belladonna.

This application may be allowed to remain forty-eight hours, when it may be renewed or the tooth properly filled. In caries of the third degree where the pulp is exposed, a morsel of the following the size of a pin's head may be applied to the pulp:

R. Cocain hydrochloridi,
Morphin hydrochloridi, equal parts.
Olei caryophylli q. s. to make a paste.
M. Cover with gutta percha.

If it devolves on the physician to destroy the pulp he should use:

R. Acidi arsenosi	gr. xv	1
Cocain hydrochloridi	gr. lxxv	5
Olei caryophylli q. s. ad. to make a thick paste.		

M. Sig.: Apply for twenty-four hours, to be followed by a filling.

Solution of suprarenal extract may replace the oil of cloves.

Where periostitis exists, the tooth should be cleansed and the gums painted morning and evening with tincture of iodin or equal parts of tincture of iodin and tincture of aconite. The gum may also be cauterized twice a week.

Subgingival injections of the following may relieve:

R. Cocain hydrochloridi	gr. 3/5	04
Antipyrini	gr. vi	40
Aquæ dest.	m. xv	1

M. Sig.: Inject five to ten drops under the gum.

Thyroid Extract in Eclampsia.

Sturmer, in the *Lancet*, April 16, 1904, reports forty-one cases of eclampsia treated with thyroid extract. Ten grains of the extract were given in each case on admission, and five grains every four hours afterward. Morphin and saline injections were used in most of the cases, and was followed by a prompt evacuation of the uterus. He claims that under the thyroid extract there is a marked increase in the urine in the first twenty-four hours, while with saline injection and morphin alone there is commonly little increase in the urinary output in that length of time. In the discussion of the paper confidence was shown in the thyroid treatment.

Asthma.

The *Clinical Review* recommends the following as an efficient remedy in asthmatic conditions:

R. Kali iodidi			
Tincturæ belladonnæ, āā	ʒi	4	
Liq. potass. arsenitis	mxl	2	65
Spts. etheris sulph. comp.	ʒxii	45	
Elix. simplici	ʒii	60	
Aquæ cinnamomi q. s. ad	ʒvi	180	

M. Sig.: Tablespoonful three times a day.

Malaria.

Krauss, of Memphis, Tenn., says, in *Southern Medicine*, that he has found the following prescription very useful in latent and masked malaria.

R. Quininæ hydrobromatis	gr. xxx	2	
Hydrarg. chloridi mitis	gr. v		30
Pulveris capsici	gr. iss		10
Pulv. opii et ipecacuanhæ	gr. v		30
Aloini purificati	gr. 1/6		01

M. Ft. capsules No. vi. Sig.: One every four hours.

Practical Method of Destroying Snake Venom.

L. Rogers, in the *Lancet*, describes a practical method of treating any kind of snake poison, which promises to be of great value in all cases seen early. It is so simple that any intelligent person can carry it out. The use of permanganate of potassium as shown by Blyth, is the best-known substance as a practical antidote for snake bite. The fact that the results have not always been satisfactory is probably due to improper administration. Brunton and Fayrer have recently suggested a more radical method of using permanganate. They advise ligation above the inoculation, then incision of the wound, followed by rubbing in of the pure crystals of the salt. It is positively established that the salt will destroy in vitro nearly its own weight in every class of snake venom. It is possible that the free pouring out of lymph in the neighborhood of the wound will sufficiently retard the absorption of the venom so that a half hour or more time may elapse between the infliction of the bite and the rubbing in of the permanganate. At the suggestion of Sir Lauder Brunton a lance has been made, surrounded by a sheath, in the base of which permanganate crystals are kept, the whole outfit being easily carried in the vest pocket.

Medicolegal.

Authority of Board of Health Over Barber Shops.—The Supreme Court of New Jersey holds, in the case of La Porta vs. Board of Health of the City of Hoboken, that the legislature has given ample authority to the board of health, in the exercise of the police power, to prevent the spread of contagious skin diseases in barber shops, and that stringent regulations for that purpose are lawful.

Competency of Witnesses as Experts.—The Supreme Judicial Court of Maine says, in the case of Conley vs. Portland Gaslight Company, that when a witness is offered as an expert, it is the duty of the presiding justice to hear and consider the testimony as to his qualifications, and to decide whether the witness is qualified to so testify. He is not, however, bound to determine the fact in advance of the question to the witness which calls for expert testimony. The question itself will then show in what capacity as an expert he is asked to testify, and the ruling of the presiding justice admitting it is *ipso facto* (by the act or fact itself) a decision that the witness has qualified upon that subject, and also that the subject is one proper for expert testimony. Whether a witness called as an expert possesses the necessary qualifications to enable him to testify is a preliminary question addressed to the discretion of the presiding justice, and his decision must be final and conclusive unless it is made clearly to appear from the evidence that it was not justified or was based on some error in law. Expert capacity is a matter wholly relative to the subject of the particular question. A witness may be sufficiently qualified for one question, and totally unqualified for the next. Special skill and knowledge in regard to a particular subject can only come from experience or special study or both. Mere casual observation, superficial reading, or slight oral instruction is not sufficient.

Hospital "Bedside Notes" Not Admissible in Evidence.—The Second Appellate Division of the Supreme Court of New York holds that error was committed on the trial of the personal injury case of Griebel vs. Brooklyn Heights Railroad Company in receiving in evidence a paper containing certain so-called "bedside notes," alleged to have been made in a hospital in reference to the plaintiff while he was a patient there. It says that it agrees with the contention that the so-called "bedside notes" were not admissible in evidence. They were introduced during the examination of a hospital nurse, who was in the hospital at the time when the plaintiff was a patient there. She described the paper as a "temperature chart, known in the hospital as bedside notes," and said that such notes were taken in each case where a patient was brought to the hospital. The court is not aware of any rule of evidence which makes such a paper, offered under such circumstances, admissible. Its contents related chiefly to the physical condition of the patient, specifying particularly the injuries from which he was suffering. While it was clearly error to admit the document, the only portion therof which could have been harmful to the plaintiff in this case was the following entry: "History, good. While getting on his wagon he slipped, and his horses started up, the wagon passing over his right knee and across abdomen." This appeared to have been written by one of the physicians of the hospital, from the statements made to him by the plaintiff, but this did not render the paper competent as original evidence..

Doubts Granulated Eyelids Being Ailment Affecting Health.—The Court of Civil Appeals of Texas says that, in the case of Brock vs. the United Moderns, an action on a beneficiary

membership certificate, the medical examiner's report showed these, among other questions and answers: "(6) Have you consulted or been advised by any physician regarding your health within the last five years? If so, whom, when, and for what ailment? Answer—No. (7) If not treated within five years, how long since you were under the care of a physician, and for what cause? Answer—Never." A physician, however, testified that within the period of five years referred to the insured had consulted him with reference to granulated eyelids, and had been treated therefore for about two months. Now, as to question 6 and its answer thereto, when viewed in connection with the testimony of the physician that he had been consulted and had advised the insured with reference to granulated eyelids, the court says that there is some doubt in its mind as to whether the ailment of granulated eyelids is one that would be regarded as affecting the health; and, as to that question and the answer thereto, it might have been proper for the court to have permitted the beneficiary suing on the certificate to introduce expert testimony explanatory of what ailments would be regarded as affecting the health. But the court has no doubt in reference to question 7 and the answer thereto. It says that there was no ambiguity or uncertainty whatever connected with this question or the answer thereto which would require any explanation. The statement of the insured in answer to question No. 7 being a warranty, and the undisputed proof showing the falsity thereof, authorized and justified the instruction of the jury to return a verdict for the defendant organization.

Liability for Maltreatment of Patients in Pest-House.—The Court of Appeals of Kentucky says, in City of Lexington vs. Batson's Administrator, that the city, one of the second class, is given the power to establish and enforce quarantine laws and regulations to prevent the introduction and spread of contagious diseases within the city, and to establish and maintain eruptive hospitals in the city. It is likewise made the duty of the city council to appoint a board of health, which has the same powers within the city that the county board of health has in the county under the statute. The city had established such hospital and appointed the board of health. During an epidemic of smallpox in the city Batson had been exposed to contagion, and was consequently confined by the order of the board of health in the city hospital. He became sick of the disease, and died. It was charged that the city suffered its pest-house to become foul and unfit for use as such, and that it negligently failed to provide a suitable pest-house for the detention and treatment of those who had been exposed to or had the disease; that the city failed to provide competent physicians, or suitable or any medicines, or sufficient clothing or covering, or sufficient or fit food for the inmates; that those in charge neglected Batson in his sickness—by reason of all which he died. The evidence, it was conceded, was sufficient to sustain the jury's verdict finding for the administrator. But the court holds that the city was not civilly liable for the acts complained of. It says that the remedy, and, so far as it knows, the only present legal protection, of those unfortunates who may be maltreated as was charged in this suit is by an indictment of the officers in charge for misfeasance or nonfeasance, and a civil action against the individuals who have been guilty of the wrongs.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

July 23.

1 *The Diagnosis and Treatment of Hemorrhoids. J. Coles Brick.
2 Edema. Consideration of the Physiologic and Pathologic Factors Concerned in Its Formation. S. J. Meltzer.
3 *Metabolic Changes Caused by External Hemorrhage. William J. Gies.
4 *Two Cases of Vincent's Angina, and One of Noma, in Which the Organisms Characteristic of the Former Affection Were Found. Randle C. Rosenberger.
5 Primary Ulceration of the Tonsil, Together with Some Remarks on Tonsillar Ulceration in General. Thomas J. Harris.
6 Brain Injury. 1. Loss of One Quarter of Brain Substance with Consciousness and Ability to Talk Retained Until Death. 2. Fracture of the Skull with Porencephalia. Henry S. Wieder.

1. Diagnosis and Treatment of Hemorrhoids.—Brick discusses the subject of hemorrhoids in all its phases and urges the selection of the method most suited to the individual case, although he has not yet seen any case of internal hemorrhoids that has been too bad for the clamp and cautery method. There is a double protection against hemorrhage, both by the crushing action of the clamp on the tunica intima and by the cauterization, the thermic action of the cautery destroying all septic germs which may be present in the operative field; all capillaries and lymphatics are sealed, which prevents absorption of septic agents; there are no ligatures to cut through; the operation is finished at one time; no protracted pain from inflamed nerves; no sutures to be removed, and there is a gain of about one week in healing.

3. Metabolic Changes Caused by External Hemorrhage.—Gies discusses venesection from the point of its effect on metabolism, giving a historic review of the work done in this field by various investigators. He also carried out a number of experiments on dogs, noting the effects of hemorrhage chiefly on proteid metabolism. Each dog was brought into nitrogenous equilibrium at the beginning of each experiment, and after remaining in this condition a week or more, was subjected to repeated hemorrhages at intervals of one to three weeks. The quantities of blood withdrawn were usually from 3 to 3.5 per cent. of body weight. The blood was always taken from the femoral artery or a branch of it, while the animal was in light ether anesthesia. The total amount of blood withdrawn in four non-fatal bleedings was equal to 11.5 per cent. of body weight. Nitrogen, sulphur and phosphorus were determined by the best methods, not only in the food, but also in the urine, feces, cast-off hair and dandruff. His results seem to indicate that the organism contains more blood at all times normally than is needed, and that some of this excess ("luxus blood" of Maragliano) may be lost without particular detriment. That this excess is in the nature of a reserve supply is indicated by the prompt regeneration of volume, corpuscles and soluble constituents after hemorrhage. During special periods of hard labor the body probably needs all the oxygen resources of the whole supply of blood. There is a relatively slight and only temporary increase in nitrogenous elimination after hemorrhage, even when large volumes of blood are withdrawn, and when the losses occur at short intervals. The catabolic effects became cumulative with each successive hemorrhage. A considerable loss of blood affects the higher nerve centers by diminishing the supply of material available for their nutrition. The blood-making organs, however, and chiefly the bone marrow, are stimulated to exceptional activity after hemorrhage, resulting in unusual production of their normal catabolic products. These waste products soon appear in the urine. The thirst and increased appetite of the animal under such circumstances show how much the organism needs new material for constructive purposes. Anabolism and catabolism are apparently increased in some parts of the body and decreased in others. Sugar in the blood is in excess. Albumin and lactic acid appear in the urine. After hemorrhage, urinary volume is at first diminished, then increased, and after a few days it returns to the normal. Increase in nitrogenous elimination accompanied the increase in volume of the urine. The condition of the animal shortly after hemorrhage was similar in many respects to that after fasting. It is not improbable that during the first few hours after a hemorrhage there may be subnormal metabolism followed by a greatly stimulated metabolism. Moderate hemorrhage has a stimulating influence, but the effects of such hemorrhage are at first somewhat depressing.

4. Vincent's Angina and Noma.—Rosenberger reports three cases, two of Vincent's angina and one of noma, in which he found the symbiotic fusiform bacillus and spirillum of Vincent. He is convinced, as the result of his study of these cases,

that Vincent's angina is a distinct clinical and pathologic entity, one not to be confused either with tonsillitis or diphtheria.

Medical Record, N. Y.

July 23.

7 Notes on Some Uncommon Forms of Nervous Diseases. L. Pierce Clark.
8 The Modern Tuberculosis Dispensary. S. A. Knopf.
9 Dietetics in Summer Diarrhea. Benj. Edel Helprin
10 *Clinical Notes on the Mammary Gland, with Report of Four Cases of Somewhat Unusual Interest. Thomas H. Manley.
11 Fallacies in Vital Statistics. F. L. Wachenheim.
12 A Few Quotations from Shakespeare, Showing His Acquaintance with Medical and Other Sciences. J. W. Wainwright.

10. **Four Unusual Conditions of the Mammary Gland.**—Four cases of pathologic conditions of the mammary gland, of somewhat unusual interest, are reported by Manley. The first case is one of protracted lactation of twenty-four years' duration, in short, a galactorrhea. The patient, aged 41, of good health, had been delivered of a seven months' infant ten months after her marriage, and since this time she had a continuous flow of milk, during the intervals of conception, during widowhood following the death of her first husband and since remarriage. By squeezing the breast on one occasion she removed nearly six drams of milk having the ordinary physical qualities of the mammary secretion. From the time the physiologic waste began she was unable to carry a child to term. The second case was one of lacteal fistula in a woman aged 23, which followed an abscess of the breast. It was found that when this abscess was treated a very deep incision had been made, not along the radiating reservoirs of milk ducts, but diagonally through them, and hence the flow of milk was diverted from the nipple to the large fistulous opening. The third case was one of tumor in a woman aged 42. In spite of the patient's splendid physical condition, and the evident non-malignant character of the growth, several physicians advised the complete removal of the gland, to which, however, the patient objected. Finally, a conservative operation was permitted, and this being carried out, it was found that the tumor was an adenofibroma. In connection with this case the author asks, "Why on earth remove a mamma, strip the chest wall, and deform a woman for an encapsulated, or, indeed, a tumor of any kind, unless a promise of permanent cure can be made?" He also urges the importance of attitude, the dorsal position, on a hard, flat surface, as an aid of great value in physical diagnosis of neoplasms or tumor-like formations of dubious origin or existence. The last case was one of primary scirrhus in the axillary lymph nodes, occurring in a patient 62 years old, care-worn, emaciated and anemic. Seven months after the appearance of this primary growth a secondary tumor developed in the breast, an exceedingly rare occurrence, the tumor in the lymph nodes usually being secondary to one in the breast.

Boston Medical and Surgical Journal.

July 21.

13 Case of Moral Insanity with Repeated Homicides and Incendiarism and Late Development of Delusions. Henry R. Stedman.
14 *Etiology and Modern Methods of Treatment of Chronic Urethritis. Charles M. Whitney.

14. **Treatment of Chronic Urethritis.**—After discussing the character and location of the cause of chronic urethritis, as determined by a careful routine examination, Whitney takes up the treatment. If the condition is of gonorrheal origin and gonococci are found in the discharge, a 10 per cent. argyrol solution is injected into the urethra each day and held there for five minutes, the patient repeating this procedure three times a day with a 4 per cent. solution. Or irrigations with potassium permanganate, according to the gravity method of Valentine, may be substituted. Having freed the urethra from pus and gonococci, the cardinal point in treatment is the thorough dilatation of the urethra from the fossa navicularis to the prostate for the purpose of cleaning out the follicles and to stimulate circulation, thus tending to absorb the plastic exudation. To accomplish this there is nothing better, in most cases, than the urethral sound, of proper curve, and tapering gradually from the point until the full size is reached. Kollmann's dilator may be used in cases where stricture is absent. Care should be observed to maintain, as far as possible, the relative size of the meatus. A simple method of doing meatotomy is to first thoroughly cocainize with a 10 per cent. solution, using a small cotton swab, which is placed in the meatus and allowed to remain while the instruments are being prepared. With a small blunt-pointed tenotome an incision is made on the floor of the urethra of such size as is deemed necessary. A 1 to 3,000 adrenalin solution checks hemorrhage and sounds should be passed daily for three or five days to prevent rapid closing. The urethra should be irrigated with a 1 to 3,000 permanganate of potash or 1 to 4,000 silver nitrate solution in order to flush out material expressed from the follicles by the gravity method of irrigation. Then the prostate and vesicles should be massaged carefully once or twice weekly, from three to five minutes at a time. When the prostate is chiefly involved the deep instillation of nitrate of silver solution, 5 gr. to the ounce, increasing to 10 or 15 gr., is of value. Localized erosions should be touched with a strong solution of silver nitrate. Where there is an atonic condition of the urethral lining, the psychrophor of Winternitz may be used. When the discharge is profuse internal medication is indicated, and the oil of sandalwood is the best remedy for this purpose. When there is no longer a discharge, when the shreds contain neither pus, gonococci, or a large amount of epithelium, and when, furthermore, after producing a discharge by nitrate of silver or corrosive solution, no organisms are present, and when after alcoholic or sexual excesses no discharge appears—we may be reasonably sure that the patient is well and is no longer capable of infecting anyone else.

New York Medical Journal.

July 23.

15 Report on the Curricula of American Medical Colleges. (To be concluded.) George W. Webster.
16 Diagnosis and Treatment of Fistula in Ano. J. Coles Brick.
17 *Specifics and Specific Methods in the Treatment of Pulmonary Tuberculosis. S. Simon.
18 *A Unique Case of Chorea. James T. Wrightson.
19 *Origin of the Vermiform Appendix. A Preliminary Report. Alfred Moore.
20 *Syphilitic Manifestations in the Nose and Pharynx. Paul Turner Vaughan.
21 Treatment of Crushing Injuries Involving One Articular Surface of an Interphalangeal Joint. John G. Sheldon.
22 *The Radiant Light Bath in the Treatment of Neuroses. T. D. Crothers.

17. **Treatment of Pulmonary Tuberculosis.**—The treatment of pulmonary tuberculosis is considered by Simon, who believes that there is not and never will be any one remedy which will prove specific in this disease. In acute phthisis nearly every remedy is bound to fail. A great deal can be done for the early cases of chronic pulmonary tuberculosis, and in a large percentage of these a cure can be effected. Every case must be treated according to the peculiarities, temperamental and physical, of the patient. Plenty of pure, aseptic air is essential, and is one of the greatest therapeutic measures at our command. Learn the patient's previous condition of life, correct such faults as may exist in his environment and diet, personal hygiene, breathing, exercise, habits and dress. Sanitaria located favorably are certainly most desirable, but much can be done with home treatment and the intelligent cooperation of the patient. The author emphasizes the value of areotherapy, pulmonary gymnastics, hydrotherapy and the symptomatic treatment of drugs.

18. **Unique Case of Chorea.**—Wrightson reports a case of chorea of unusual severity in a woman of about 40 years of age. The cause was very obscure; inference pointed strongly to chorea gravidarum, yet the further progress of the case pointed strongly against pregnancy as being the cause of the attack. There was no history of rheumatism, but inasmuch as the patient improved rapidly under the influence of sodium salicylate, no other remedy giving her any relief, it is quite possible that the cause was really rheumatism. The pregnancy continued, the patient being delivered at full term of a normal, healthy child. The case is of interest because of the therapeutic diagnosis, which apparently stood in sharp contrast to the clinical findings.

19. **Origin of the Vermiform Appendix.**—Moore believes that embryologically the appendix is the distal end of a tube leading from the vitellus to the lower end of the embryo, and that the proximal part develops into the colon; that the umbilical

vesicle and duct are the distal, or outer end of another tube or duct, of which the small intestine forms the proximal part. That the two parallel tubes, joining by the umbilical ducts, become tortuous, and touching the other tube at one point which is the most prominent part of its convexity in one of its turns, union takes place, the sacculation is increased, and the umbilical duct atrophies, and is necessarily removed from the other tube by the rapid growth of the small intestine, which fact accounts for Meckel's diverticulum, when present, being so far away from its fellow. After communication between the two tubes, the large intestine increases in size and the cecum is formed.

20.—See abstract in THE JOURNAL, xli, p. 1041.

22.—Ibid, p. 978.

Medical News, New York.

July 23.

23 Some Surgical Aspects of Obstetrics. William S. Stone.
24 *Myelogenous Leukemia, with Disappearance of the Splenomegaly and the Myelocytes. Charles E. Simon and D. G. J. Campbell.
25 A Visit to Gheel. Smith Ely Jelliffe.
26 Personal Experience in the Treatment of Typhoid Fever. Carter S. Cole.
27 *Extrauterine Pregnancy—Some Observations in a Case Ruptured by Examination. W. L. Wallace.
28 A New Brace for the Shoulder Joint. Leonard W. Ely.
29 The Early Diagnosis of Pott's Disease. Frank P. Vale.

24. Myelogenous Leukemia with Disappearance of Characteristic Symptoms.—Simon and Campbell report a case of myelogenous leukemia, the diagnosis being confirmed microscopically, in whom twice within less than twelve months the classical features of the disease, splenomegaly and myelemia, could be demonstrated and then disappeared. At neither intermission was there any evidence of an intercurrent disease to account for the improvement. When the patient first came under their care, her spleen was greatly enlarged and the blood was absolutely characteristic of the disease. The red cells numbered 1,700,000 and the leucocytes 350,000. Under the continuous administration of Fowler's solution in increasing doses the leucocytes fell to 4,000 within a month; the myelocytes diminished to 6.1 per cent., and there was nothing in the blood to suggest leukemia except the high percentage (10.8) of mast cells. Six weeks later the enlargement of the spleen had nearly disappeared, and after ten months the spleen is barely palpable. The patient's weight increased about twelve pounds; her hemoglobin had risen to over 75 per cent., and at the last examination of the blood, made about a year from the time when she first went to the hospital, the hemoglobin was 80, the red cells numbered 5,200,000 and the leucocytes 6,500. Of these 26.7 per cent. are small mononuclears, 14.4 per cent. large mononuclears, 51.5 per cent. polynuclear neutrophiles, 3.3 per cent. eosinophiles and 3.5 mast cells. An occasional myelocyte was encountered, but the number did not exceed 0.4 per cent. There can be no doubt that the arrest of the disease is merely temporary, if, indeed, there is arrest of the pathologic process. Poikilocytosis has continued right from the very beginning, and together with the occasional increase of the color index, is strongly suggestive of a pernicious anemia, into which the leukemic condition may be merged. In a supplemental report the authors give the following blood findings: Red cells, 5,480,000; leucocytes, 3,789. Of these 47 per cent. are mononuclears, 35 per cent. polynuclear neutrophiles, 6 per cent. eosinophiles and 12 per cent. mast cells. There were no myelocytes and the poikilocytosis and anisocytosis had almost entirely disappeared.

27. Extrauterine Pregnancy.—Wallace calls attention to the danger of rupture of an ectopic gestation by examination, and reports a case in point. The case was operated and the patient made an excellent recovery. One peculiarity noticed by the author was the pulse rate and the fact that there had been no irregular bloody vaginal discharge. With regard to the pulse rate, there is the danger of being misled by a pulse which becomes slower even while the hemorrhage is taking place. This slowing of the pulse might be accounted for by the suddenness and rapidity of the hemorrhage which induced syncope on the one hand, and thus lowered the arterial tension; and, on the other hand, left so little blood in the veins that the ventricles were a long time in filling. This slowing has not occurred in less rapid hemorrhages which have come under the author's observation.

Cincinnati Lancet-Clinic.

July 16.

30 Polyadenoids of the Rectum. George B. Evans.
31 Care of the New-born. E. W. Mitchell.
32 Function of Medicine in Progress of Civilization. G. W. McCoy.

July 23.

33 Ununited Fractures. Robert Carothers.
34 *Hypertrophied Rectal Valves and Their Treatment. Wells Teachnor.
35 Relations of the Nursing Profession to That of Medicine and to Society. Charles A. L. Reed.
36 Drug Peculiarities of Children. H. H. Jacobs.

34. Hypertrophied Rectal Valves and Their Treatment.—The anatomy and physiology of the rectal valves are discussed by Teachnor. These valves may become hypertrophied from both local and constitutional causes, such as proctitis following gonorrhea, irritations produced by scybala and other foreign bodies, dysentery, tuberculosis and syphilis, or malignant disease. A number of illustrative cases are cited, in each of which a routine method of treatment was followed. In most cases it is necessary to resort to surgery. Where operative measures are not advisable, and when the hypertrophy is not considerable, gentle massage with a solid metal ball on the end of a bar of sufficient length to reach the uppermost rectal chamber often gives relief. Each valve can be massaged gently through a proctoscope. The accompanying proctitis is relieved by proper remedies, among the most important of which is a spray of nitrate of silver solution and topical applications of ichthyol. Cases due to constitutional diseases can usually be relieved by the remedies indicated in those diseases. An operation is necessarily complex. Martin's operation is quite difficult, requires an elaborate armamentarium and is open to so many dangers, such as hemorrhage and peritonitis, that it will never come into extensive general use. The operation devised by Pennington is preferable to any other. By means of clips an elliptical piece is cut out from the free border of the valve, usually without pain and danger of hemorrhage, and should the peritoneum be opened, adhesions from plastic exudates are formed before infection takes place. The benefit derived from operative procedures depends on the proper selection of cases.

Journal of Eye, Ear and Throat Diseases, Baltimore.

May-June.

37 Pemphigus (?) of the Respiratory Tract with Conjunctival Lesions. Richard H. Johnston.
38 Value of Strong Magnifying Glasses in Amblyopia. Edward E. Gibbons.

Journal of Medical Research, Boston.

July.

39 *Concerning the Specificity of the Somotogenic Cyto-toxins. Richard M. Pearce.
40 The Diagnosis of Anatomic Anomalies Causing Malposition of the Head and Distortion of the Face. Thomas Dwight.
41 *The Elimination of Strychnin Into the Gastrointestinal Canal of Nephrectomized Rabbits. William Salant.
42 The Clotting of Blood of Nephrectomized Rabbits. S. J. Meltzer and William Salant.
43 Histologic Studies of Xanthoma. Joseph McFarland and Guthrie McConnell.
44 *Multiple Non-inflammatory Necrosis of the Liver with Jaundice. Horst Oertel.
45 A Stain Applicable to Differential Leucocyte Counts in the Counting Chamber. B. Onuf.
46 The Influence of the Quantitative Relationships of Amboceptor and Complement on the Reaction Rate in Serum Laking. E. H. Davey.
47 Agglutination. B. H. Buxton and Victor C. Vaughan, Jr.
48 Zonal Necrosis of the Liver. Eugene L. Opie.

39. Specificity of Somatogenic Cyto-Toxins.—Pearce undertakes to demonstrate by a comparative study of the somatogenic cyto-toxins, that the action of any given cyto-toxin depends on the chemical (receptor) organization of the cell, and not on morphologic characteristics; that an artificial antiserum may have a definite toxic action on several types of cells of widely differing morphology, but presumably having, in part at least, common receptors; that specificity in the sense of morphologic affinity is of secondary importance, and in the case of some sera may not exist; that many of the results supposed to be due to the specific action of one cyto-toxin are

due rather to other cyto-toxins adventitiously elaborated as the result of improper methods of immunization. In the course of an experimental investigation of nephrotoxins he found that by the usual method of immunization, that is, the injection of the kidney with its contained blood, a serum strongly hemagglutinative and hemolytic was produced, and that the hemoglobinuria resulting from the injection of this serum entirely obscured any nephrolytic action it might possess. The hemagglutinative element of the serum also causes the agglutination of the red blood corpuscles; the thrombi thus formed occluding the vessels of the liver with resulting focal necroses of that organ. It was evident, says Pearce, that many of the results previously reported as due to a specific nephrotoxin or hepatotoxin were due to hemagglutinins or hemolysins forming in animals improperly immunized. To obviate this difficulty blood-free kidney was used in the immunization, with the result that although the serum thus obtained was powerfully nephrotoxic it was, also, in a moderate degree hemagglutinative and hemolytic; it did not, however, cause hemoglobinuria. These observations led Pearce to conduct a very extensive series of experiments on animals, the dog and the rabbit being selected; the latter being immunized with the cells and fluids of the former. The method of immunization adopted was that followed in the work of nephrotoxins. The immunizing fluids used were defibrinated and washed blood; the serum from unwashed organs, such as the kidney, liver, pancreas and adrenals; sera prepared from washed organs, the same as before; sera prepared by injecting blood serum, bile and urine. Death followed only after the use of sera prepared from red blood corpuscles and from blood-containing organs. With the exception of the powerful nephrotoxin prepared from washed kidney cortex, death has never resulted from the injection of sera prepared from washed parenchymatous cells or from blood-free body fluids. Pearce concludes that it is evident that the cells of the various organs of the body, while differing in morphology and function, have certain receptor characteristics in common, and that one type of cell may produce anti-bodies affecting several cells of different morphology, but with like receptor groups. Some of the cyto-toxic sera have no effect on organs for which they are supposed to have a morphologic affinity, but exert a powerful lytic influence on other cells. Aside from nephrotoxin, which has a distinct injurious action on renal epithelium, the various cyto-toxins studied had no specific action in the morphologic sense. The action of kidney serum might be described as "special," pancreas and adrenal serum are devoid even of special action, while the lesions of so-called hepatotoxin are doubtful and may be produced by other sera. The striking characteristic of adrenal serum is its powerful hemolysin. That specificity is a function of receptors and not of cells is shown by the appearance of anti-bodies in the serum of animals receiving serum, bile and urine; the diverse character of these receptors by the variety of cyto-toxins thus formed. Many of the positive results described as specific and characteristic of certain cyto-toxins are due rather to hemagglutination and hemolysin adventitiously formed as the result of impure methods of immunization. Hemagglutinin was present in all the sera studied and in some when sufficiently powerful, caused the formation of red blood corpuscle thrombi and a resulting mechanical disturbance of the circulation leading to degeneration, necrosis and hemorrhage. This action is best illustrated by anti-bile sera. Such lesions have heretofore been confounded with the action of the cyto-lytic constituent of the serum and have been considered a specific, while they are due to the much simpler agglutinating body.

41. **Elimination of Strychnin in Nephrectomized Rabbits.**—Salant put to an experimental test the suggestion that strychnin might perhaps be excreted into the alimentary canal when the kidneys have been removed. Rabbits were nephrectomized and about one to two hours afterward the first injection of strychnin was made. The following injections were made at intervals ranging from one to three hours, some rabbits receiving as much as 5.4 milligrams of strychnin per kilo. The contents of the several portions of the alimentary canal were removed and examined separately for strychnin. The methods employed were those of Stas, Dragendorff, Haines and Blyth. As a result of his observations Salant arrives at the following conclusions: (1) Vicarious elimination of strychnin into the gastrointestinal canal of nephrectomized rabbits is either slight or does not occur at all. (2) The liver neither destroys nor retains strychnin. The same is true of the brain and spinal cord. (3) The physiologic effect of strychnin is considerably impaired when heated with the contents of the large intestine. (4) The large number of manipulations recommended by the methods in use for the separation of strychnin involves loss of substance and consequent inability to detect small quantities of strychnin. (5) The physiologic effect of strychnin is markedly impaired by dilution, such as the contents of the gastrointestinal canal or stomach. (6) The injections of the contents of the large intestine into frogs causes coma and paralysis. It contains, therefore, some toxic substance or substances antagonistic to the action of strychnin.

44. **Liver Necrosis with Jaundice.**—Oertel calls attention to a lesion of the liver which has received inadequate attention, showing an exaggerated, severe destruction of the liver tissue alone, with no free, acute or chronic reaction; that is, the occurrence of a multiple circumscribed, atrophic to necrotic fossa, nonseptic in character, unaccompanied by an acute inflammation or compensatory connective tissue growth, only associated with bile and capillary stasis in the affected areas, and local portal sclerosis. The author cites a case in point on which he had an opportunity to perform an autopsy. This case is analyzed carefully and the following conclusions are drawn from the analysis: (1) There exists a non-inflammatory destruction of the liver in the form of multiple atrophic to necrotic fossæ of the liver lobule, with bile and blood stasis and associated icterus. (2) Evidence indicates that this is probably due to the entrance of a bacterial irritant either by the bile ducts or the blood vessels. (3) The reaction of the liver tissue to this invasion is found in a localized cirrhosis most pronounced around the bile ducts and vessels, and a proliferation of bile ducts. The sclerosis appears to takes its origin around the places of entrance. (4) The disease seems to occur in a previously severely damaged liver, bile stasis, severe alcoholic excesses. The name multiple non-inflammatory necrosis of the liver with jaundice (hepar necroticum cum ictero) is suggested for this disease.

Annals of Surgery, New York

July.

49 *The Anatomy and Surgery of the Internal Derangements of the Knee-joint. Benjamin Tenney.
50 Tumors of the Chiasm, with a Proposal How to Reach the Same by Operation. Otto G. T. Kiliani.
51 Primary Cholecystectomy; Scope, Method and Results. Howard Lilienthal.
52 *Primary Sarcoma of the Spleen, and Its Treatment by Splenectomy. Wm. Jepson and Frederick Albert.
53 *Hernia of the Uterus Through the Inguinal Canal. John H. Jopson.
54 Suture of the Brachial Artery. Gaston Torrance.
55 *Pyemic Glanders in the Human Subject. J. Clark Stewart.

49. **Anatomy and Surgery of the Knee Joint.**—A very excellent article is contributed by Tenney on the anatomy and surgery of the internal derangements of the knee joint, based on a study of 150 dissected joints and the literature on the subject. The article is illustrated profusely with elegant halftones of dissections of the knee joint depicting its anatomy, and also artificially produced pathologic conditions. Because of the nature of the article it is impossible to abstract it without detracting from its worth.

52. **Primary Sarcoma of the Spleen; Splenectomy.**—Jepson and Albert describe a case of sarcoma of the spleen operated on successfully, the patient being in perfect health eight months after the operation. A blood examination had been made prior to the operation and at intervals following the operation. The last examination showed 4,420,000 red corpuscles and 10,810 white corpuscles; hemoglobin, 84 per cent. It is necessary to make the diagnosis before the occurrence of metastases because otherwise splenectomy will prove a failure. For the present at least the diagnosis must be based largely on the recognition of the existence of a solid growth in the spleen,

and that a definite diagnosis can not be made until the spleen is exposed through an exploratory incision, which, according to the authors, is always indicated where doubt exists. In the hands of experienced surgeons the operation is attended by a small mortality. Thus far 11 splenectomies are recorded in the literature. Of these 3 proved fatal. Of the 8 cases that survived the immediate effects of the extirpation, 3 have died since of recurrence and in 1 there exists no data which can be utilized in determining freedom from recurrence. Of the 4 remaining, 2 at least may be said to have been free from recurrence, 1 for four years and the other for six and a half years. In the other two cases sufficient time has not yet elapsed since the operation to eliminate the possibility of recurrence; yet the fact that the first was at the end of four months, and the latter at the end of ten months, found to be possessed of good health, without any discernible evidence of recurrence, entitles one to the belief that freedom from recurrence may be the result. If this be true, primary sarcoma of the spleen may be looked on as highly amenable to a cure through splenectomy. Metastasis is a positive contraindication to operation.

53. **Inguinal Hernia of the Uterus.**—Jopson reports a case of inguinal hernia of the uterus, with operation and recovery. The patient, aged 27, had a small, right inguinal hernia about the size of a walnut, as long as she can remember. It was reducible and gave her no trouble. She never wore a truss. Suddenly, while washing, a large protrusion made its appearance, accompanied by severe pain. There was neither vomiting, constipation, chill nor fever. Under anesthesia the hernia was found to be irreducible. The operation was proceeded with, and an examination of the contents of the inguinal canal disclosed the uterus turned over forward, the supravaginal portion running backward, downward and inward toward the cervix. A vaginal examination confirmed these findings. Hysterectomy was done, but owing to infection of the uterus, the pedicle was fastened in the external abdominal ring, the pillars of the latter were sutured with chromicized catgut, above, around and below it. A small gauze wick was laid over the stump and the wound closed in its deeper portion by a continuous chromicized catgut suture, and the skin with silkworm gut, the gauze, being brought out at the lower angle. The patient made a perfect and uneventful recovery.

55. **Pyemic Glanders in Man.**—Stewart reports a case of pyemic glanders occurring in one of the assistant bacteriologists of the Minnesota State Board of Health, which was due to an accidental infection while working on material from two fatal cases of human glanders in young men owing their infection to contact with diseased horses. Both these cases began with symptoms resembling typhoid fever, rapidly passing into those of sepsis. Both patients died on the seventeenth day with multiple abscesses in the skin and subcutaneous tissue, the skin lesions being so numerous as to excite the suspicion of smallpox. In the case reported by the author the infection occurred through a small open wound on the finger during an autopsy on an inoculated guinea-pig. The infectious foci were limited to the voluntary muscles and did not involve the skin and mucous membranes as is common in most cases of glanders. The patient recovered.

Journal of Nervous and Mental Diseases, New York.

July.

56 *Multiple Sclerosis, with the Report of Two Additional Cases with Necropsy. Wm. G. Spiller and C. D. Camp.
57 Multiple Sclerosis: Its Occurrence and Etiology. Smith Ely Jelliffe.
58 *Uremic Hemiplegia, with Changes in the Nerve Cells of the Brain and Cord, and Recent Primary Degeneration of One Central Motor Tract. T. H. Weisenburg.

56. **Multiple Sclerosis.**—The authors report two cases of multiple sclerosis with necropsy. The first case was suggestive of transverse myelitis, but it was supposed to be a case in which diffused lesions were present in the lateral and posterior column, and certain facts in the history suggested syphilis. No examination of the eye grounds was made. In both cases optic nerve degeneration was pronounced. An examination of the eye grounds is of great importance in every case presenting symptoms that could be attributed to multiple sclerosis, because the disturbance of vision may be slight as compared with the alteration of the optic nerves.

58.—This article has appeared elsewhere. See THE JOURNAL, xlii, title 114, p. 1051.

Albany Medical Annals.

July.

59 *Eye Symptoms Indicative of General Diseases. Cyrus S. Merrill.
60 Complications and Degenerations of Uterine Fibromyomata. Ellice McDonald.
61 *A Peculiar Hypertrophy of the Prostate Accompanied by an Ascending Infection and Cysts in the Ureters, with a General Discussion of Ureteritis Cystica. Harry W. Carey and Arthur T. Laird.
62 Congenital Atresia in Upper Third of Small Intestine; Rudimentary State of the Whole Intestinal Tract Below; Presentation of Anatomic Specimen. J. L. Archambault.

59. **Eye Symptoms in General Diseases.**—The relation between eye diseases and certain general diseases, says Merrill, is so intimate that not infrequently the eye symptoms are the first indication of the general malady, and the physician who does not appreciate the significance of the former will lose the opportunity of combating the general disease at a time when treatment will be of most benefit. The ophthalmologist, on the other hand, should recognize that eye symptoms are secondary to and caused by general disease, otherwise he may fail to benefit his patient by restricting himself to local medication. The more experienced the ophthalmologist is in general medicine, the more expert and successful he will be in his special work. By watching the movements of the eyelids we sometimes discover symptoms diagnostic of exophthalmic goiter. In the conjunctiva look for discolorations, such as are produced in jaundice, and the peculiar tint found in anemia and chlorosis. Inflammation of the subconjunctival tissue and superficial layers of the sclera may indicate rheumatism or syphilis. The spontaneous rupture of conjunctival vessels suggest the possibility of similar accidents occurring in the brain. Ulcers of the conjunctiva are suggestive of tuberculosis. Phlyctenular keratitis suggests improper nourishment, and in children adenoids and inflammation of the nasopharynx. Interstitial keratitis is almost diagnostic of inherited syphilis. In the iris there may be manifestations of rheumatism, syphilis, gonorrhea, tubercle and sarcoma. A careful study of the reactions of the pupil will afford much assistance in determining many lesions in the nervous system. A haziness of the retina due to edema and inflammatory exudation, congestion of the optic disc with blurred outlines, tortuosity and enlargement of the retinal vessels, with or without hemorrhages, is the picture of retinitis and generally suggestive of nephritis or syphilis. The choked disc picture is diagnostic of brain tumor. It is evident, therefore, that careful examination of the eye and the accessory structures is of vast importance in many general diseases and should never be omitted.

61. **Peculiar Hypertrophy of the Prostate.**—Carey and Laird report two cases of unusual and peculiar hypertrophy of the prostate, accompanied by an ascending infection and cysts in the ureters. They summarize their paper as follows:

1. Hypertrophic lateral lobes of the prostate may be pedunculated and by their downward pressure on the urethra obstruct the outflow of urine, acting like a "drop latch."
2. The origin of cysts in the ureter is attributed to the central degeneration and later transudation of fluid into v. Brunn's cell nests.
3. Ascending infection of the urinary tract is the important factor in the etiology of these cysts.
4. The peculiar translucent oval bodies resembling sporozoa are in some instances the product of epithelial degeneration.
5. The cysts may, in their early stages, simulate miliary tubercles.
6. Cysts of the ureter may cause obstruction of the passage of urine from the kidney to the bladder with consequent hydronephrosis.
7. Rupture of the cysts can give rise to hematuria.

Bulletin of the Johns Hopkins Hospital, Baltimore.

May.

63 *Observations on Two Cases of Tuberculous Pericarditis with Effusion. Wm. S. Thayer.
64 *The Relation Between Carcinoma Cervicis Uteri and the Bladder and Its Significance in the More Radical Operations for That Disease. John A. Sampson.
65 *Cesarean Section and Serious Dystocia Following Ventrofixation and Suspension. Frank W. Lynch.
66 Two Cases of Multiple Saccular Aneurisms of the Aorta with Rupture Into the Pericardium. P. K. Gilman.
67 Report of Results of Nursing Dispensary Tubercular Patients. R. Thelin.

63. **Tuberculous Pericarditis with Effusion.**—Thayer reports two cases of this kind. The interesting features in the first case were the large amount of fluid obtained on aspiration, the subsequent development of paralysis of the left vocal cord due undoubtedly to sclerotic changes in the mediastinum following involvement of lymphatic glands or extension of the tuberculous process from the pericardium to the lung; the gradual development of the signs of adherent pericardium; the completeness of the recovery after so extensive an effusion. The second case is of interest because of its bearing on the question as to the position of the point of greatest advantage for aspiration in pericardial effusions. Although aspiration of the pericardium is a relatively simple procedure, it is not one which is frequently demanded even in large effusions; it should be reserved for those cases where the limits of the tolerance of the heart are passed, or the phenomena of cardiac adynamia begin to appear. The important point in the diagnosis is the shape of the area of dullness (relative dullness) and not the extent or shape of the area of cardiac flatness (absolute dullness). The pericardial sac full of fluid always has a more or less triangular shape, and the area of pericardial dullness extends obliquely outward on the one hand to the splenic flatness or the lower limit of pulmonary resonance and on the other in the hepatic flatness. The best place to aspirate is that in which drainage will be most perfect. In cases where the apex can not be localized, where there is no reason to suspect that the heart extends beyond the left mamillary line, the sixth space at about the mamillary line is the point of greatest advantage. It is best not to introduce the needle too far up in order to allow for retraction of the sac. If it is definitely determined that the dilated heart extends beyond the mamillary line, a point a little outside of the supposed position of the apex should be sought. Aspiration should always be preceded by exploratory puncture. If the heart is found directly behind the point selected for aspiration, it may be wise to introduce the needle in the fourth right space close to the sternum, provided there be flatness on percussion at that point. If the needle is introduced downward and to the right, there ought to be little danger of entering the heart.

64. **Relation Between Carcinoma Cervicis Uteri and the Bladder.**—Sampson discusses this condition and its significance in the more radical operation for cancer of the uterine cervix. He describes the normal relation betwen the cervix and the bladder, the relation between the growth and the bladder and, finally, the effect of the more radical operations on the bladder. He also details the result of some experiments made on dogs, demonstrating some of the etiologic factors in the causation of cystitis and ascending renal infection, using bouillon cultures of staphylococcus pyogenes aureus as the infective agent, occurring during operations on the cervix. Injury of the bladder, interference with its function or with its blood supply caused by ligating vessels giving rise to vesical arteries or cutting off vessels going to the bladder and the injury of vessels in the bladder walls are some of the main accessory etiologic factors in the causation of the cystitis. Organisms may gain access to the bladder in various ways. They may be present in the bladder at the time of the operation; they may pass through the injured bladder wall, through the fundus or trigonum, or along the bared ureters if dissected free or resected and implanted in the bladder. They may be carried in by catheterization or carried down from the kidneys, or conveyed to the bladder by the circulating blood. It is evident that the relation between carcinoma cervicis uteri and the bladder is a very important one on account of the early invasion of the bladder, and also because of the likelihood of postoperative cystitis with its accompanying danger of ascending infection. The avoidance of injury to the bladder means in many instances a return of the growth and cystitis, with the danger of ascending renal infection. A wide excision of the growth with any portion of the bladder adherent means a higher percentage of cures and the probable avoidance of cystitis and ascending renal infection. The author followed the bladder conditions after operation in 16 cases. Cystitis occurred in 12, and in three of the remaining four cystitis apparently did not occur because of an accidental vesico-vaginal fistula which was present. It seems best that following these operations the bladder should be catheterized every three or four hours, followed by irrigation to prevent retention of urine and avoiding or lessening the severity of the cystitis. Should a severe cystitis develop, a vesico-vaginal fistula should be made, which may be done without even a local anesthetic, and if it does not close spontaneously it may also be closed without an anesthetic. The excision of portions of the bladder adherent to the growth improve the chances of cure, and the presence of the vesico-vaginal fistula apparently lessens the chances of a postoperative cystitis and the danger of ascending renal infection.

65. **Results of Ventrofixation and Suspension.**—The complications of pregnancy which may be ascribed to ventrofixation, says Lynch, vary greatly in degree, and doubtless depend on the extent and length of the adhesions which fasten the uterus to the abdominal wall. In most cases little or no difficulty is experienced, but in some adhesions may give rise to serious complications, which have been tabulated by Kelly as follows:

1. Marked retraction of the scar due to the tugging of the adherent uterus.
2. Constant hypogastric pain.
3. Retraction and displacement of the cervix, even up into the abdominal cavity.
4. Formation of a tumor obstructing the pelvic inlet, resulting from hypertrophy and deficient expansion of the anterior uterine wall.
5. Excessive thinning of the posterior wall of the uterus.
6. Abortion or premature labor.
7. Persistent and excessive nausea.

During labor the following complications may be noted:

1. Prolongation of pregnancy.
2. Inertia of the uterus due to excessive thinning of its walls.
3. Dystocia due to the tumor formed by the contracted anterior wall of the uterus.
4. Inability of the cervix to dilate, owing to its abnormal position.
5. Increased frequency of abnormal presentations.
6. Rupture of the scar of fixation.
7. Rupture of the uterus.

Lynch is of the opinion that the operation of ventrofixation during the child-bearing period should be abandoned; while the few cases in which unintentional fixation has followed supposed suspension of the uterus render it questionable whether even this more conservative operation should be employed. Neither procedure is justifiable until after the menopause, as it is not proper to undertake an operation for the cure of a condition which does not threaten life, but merely exposes the patient to a certain amount of discomfort. He does not offer a suitable operation in these cases, but hints that some of the procedures which aim to maintain the organ in position by shortening the round and the utero-sacral ligaments, will eventually prove to be the operation of choice.

Southern Medicine and Surgery, Chattanooga.

July.

68 Errors in Diet as a Cause of Infantile Diarrhea. St. G. Grinnan.
69 Chronic Gastritis—A Comparatively Infrequent Disease. Raymond Wallace.
70 Pelvic Disorders. W. G. Bogart.

Merck's Archives, New York.

July.

71 Antagonism of Strychnin and Alcohol. J. M. French.
72 Index of Diseases, Alphabetically Arranged with Their Modern Treatment. (Continued.) G. Bjorkman.

Providence Medical Journal.

July.

73 Some Phases of Medico-sociology. Wm. R. White.
74 Why Did He Die? G. T. Swarts.

Northwest Medicine, Seattle.

July.

75 Increase of Insanity and Its Remedy. J. R. Loughary.
76 Typhoid Fever, Etiology and Pathology. H. G. Lazelle.
77 Typhoid Fever, Diagnosis and Prognosis. Robert M. Stith.
78 Treatment of Typhoid Fever. Elmer E. Heg.
79 Treatment of Acute Anterior Gonorrhea in the Male, from a Hygienic, Aseptic and Antiseptic Point of View. (Concluded.) G. S. Peterkin.

Medical Fortnightly, St. Louis.

July 11.

80 Gallstones in the Common Bile Duct. Stephen H. Weeks.
81 Acidity. William F. Waugh.
82 Importance of Exact Terminology in Medical Literature: Anent the Physiologic (?) Action of Drugs. Jos. Clements.
83 Testimonies of Ancient Sepulchres on the Question of Paleolithic Man in the Western Hemisphere—A Contribution to Paleo-American Medicine. Albert S. Ashmead.

Los Angles Medical Journal.

July.

84 Cancer. Its Alarming Increase, Nature and Etiology. James H. Shults.

Interstate Medical Journal, St. Louis.

July.

85 Laryngectomy. N. B. Carson.
86 Intussusception. Charles H. Dixon.
87 Suppurative Disease of the Accessory Nasal Cavities. W. B. Shields.

Iowa Medical Journal, Des Moines.

July 15.

88 Some Obstetrical Anomalies and Triple Birth. T. F. Beveridge.
89 Some Observations Made in a Series of 1,500 Confinement Cases. Ferdinand J. Smith.
90 Pyemia and Phlebitis Complicating Tonsillitis, with Report of Case. G. A. Woodcock.
91 Immediate Repair of Perineal Lacerations. J. A. Downs.
92 Was It the Potassium Iodid? Christian Johnson.

Medical Sentinel, Portland, Ore.

July.

93 Brain Softening. Walter T. Williamson.
94 Arteriosclerosis, with Report of a Rapidly Fatal Case. George E. Houck.
95 Hip Tuberculosis, with Report of a Case. W. L. Cameron.

Medical Bulletin, Philadelphia.

July.

96 Delirium Tremens—Typhoid Fever—Continued Fever. John V. Shoemaker.
97 Sundown Journalism. T. D. Crothers.

Northwestern Lancet, Minneapolis.

July 15.

98 Locating Surgical Kidney Lesions. M. C. Millet.
99 Complications and Sequelæ of Typhoid Fever. Mary P. Hopkins.
100 Sketch of Life of Dr. Samuel D. Gross. J. Warren Little.

Cleveland Medical Journal.

July.

101 Report of Two Cases of Hemifacial Atrophy, with Presentation of Patients. Hubert deL. Spence.
102 Practical Deductions from Some Personal Experiences with Ectopic Pregnancy. R. E. Skeel.
103 Trypanosomiasis. Roger G. Perkins.
104 What May Be Accomplished by the Organized Profession Toward Improving the Ohio State Medical Institutions. A. P. Ohlmacher.
105 Use and Abuse of the Artificial Drum-head. E. L. Mather.

Atlanta Journal-Record of Medicine.

July.

106 Study of a Case of Lateral Curvature of the Spine: A Report of an operation for the Deformity. Michael Hoke.

Canadian Practitioner and Review, Toronto.

July.

107 Lithotomy vs. Litholapaxy. Charles B. Suttleworth.
108 Morbus Coxæ—Etiology and Diagnosis. W. E. Gallie.

American Practitioner and News, Louisville.

July 1.

109 Pathologic Products of the Urine and Their Significance. E. S. Allen.
110 Gyneco-pathology. Fred L. Koontz.

Kansas City Medical Index-Lancet.

July.

111 Anesthesia. F. M. Floyd.
112 Civil Malpractice—Limitations. L. B. Sawyer.
113 Mastoiditis. Wm. M. Reed.
114 Toxicity of the Coal-tar Derivatives. J. T. Curtiss.
115 Practice of Surgery vs. Practice of Medicine. Floyd E. Waterfield.

Carolina Medical Journal, Charlotte, N. C.

June.

116 Annual Oration—Æsculapian Dreams. Charles A. Julian.
117 Infection. I. W. Faison.
118 Quinin. James M. Parrott.
119 Case of Subnormal Temperature Following Malarial Fever. J. D. Roberts.
120 United Fractures. Stuart McGuire.
121 Use of the Cystoscope. A. J. Crowell.
122 Acute Ileocolitis. G. O. Kirby.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

July 16.

1 *Paroxysmal Tachycardia. James Barr.
2 *Further Facts in Favor of an Infective Element in Gout. Chalmers Watson.
3 Diacetic Acid Reaction in the Urine, with Especial Reference to Gastric Ulcer. H. D. Rolleston and B. N. Tebbs.
4 Incubation Period of Pneumonia. Eustace M. Callender.
5 *Chronic Gastric Ulcer and Pyloric Stenosis and Their Treatment by Gastroenterostomy. Herbert F. Waterhouse.
6 Hemorrhage from a Chronic Gastric Ulcer; Operation; Recovery. C. Firmin Cuthbert.
7 Ozaena (Atrophic Fetid Rhinitis), a Cause of Gastritis. Adolph Bronner.
8 *Instance of Adiposis Dolorosa in Two Sisters. J. A. Hammond.
9 Midwives' Act and the Teaching of Midwifery to Students. Charles J. Wright.

1. **Paroxysmal Tachycardia.**—The case of paroxysmal tachycardia reported by Barr was the result of a kick or blow on the epigastrium during a game of football. The pulse was over 250, and continued so for about a week. The abdomen became much swollen, and under cocain anesthesia a large amount of fluid was evacuated. The blood pressure was very high. The right auricle extended nearly to the right nipple and the left ventricle was contracted. The second pulmonic sound was accentuated. Over the right ventricle the cardiac contraction looked like a quiver rather than a systole. The liver was large and tender. The injury had stimulated the inhibitory action of the vagus, and this led to paralytic distension of the right side of the heart and consequent tachycardia. Very little blood reached the left side of the heart, the arteries contracted more than was necessary, and consequently the arterial blood pressure rose. The high tension extended back through the lungs, as was shown by the accentuated pulmonic second sound. The patient got 5 gr. of calomel; nitrite of amyl inhalations; a hypodermic injection of 1/50 gr. of atropin; and 1/50 gr. of nitroglycerin every two hours. Within twenty-four hours the pulse fell to 84, was regular, full and strong. A week later he was discharged quite well, with a level pulse rate of 60. The patent had four similar attacks later on, each due to fear, or a severe physical effort. The author advises putting the patient to bed, the free use of amyl nitrite, nitroglycerin and similar agents to lessen peripheral resistance and to equalize the amount of blood in the two sides of the heart. Encourage the patient to take deep, long breaths so as to aspirate the blood from the right side of the heart into the lungs, and thus give a better supply to the left ventricle. Counterirritation might call into play the reflex cardiac contractions of Abrams. If after the preceding measures have been carried out the hyperdistended right ventricle does not properly contract, then the addition of digitalis or of digitalin or strychnin is required. A good brisk purgative will clear the portal circulation. The diet should be as dry as possible, so as to avoid the addition of fluid to the over-depleted veins and right side of the heart.

2. **The Infective Element in Gout.**—Watson has made a careful histologic study of the bones and joints of gout, and is of the opinion that not only is the deposit of urate of soda constantly found in gouty inflammation, but that it stands to it in the relation of cause rather than effect; that is to say, the deposition of the salt first takes place in the synovial membranes, cartilages and tendonous structures of the joint, and by its presence gives rise to inflammatory reaction. Neither of the theories held by Garrod or Ebstein adequately explains the histologic appearances as revealed by modern methods of examination. A study of the clinical features of an acute paroxysm of gout, the manner of onset, the temperature chart, the local appearances, liability to relapses, etc., suggest an acute infective disorder. In the course of an investigation on the comparative pathology of chronic articular disease, involving examination of over 200 subjects, Watson was impressed with the fact that the gross changes in the bone marrow exceeded in severity the lesions in the articulations. He regards the bacterial element in the disease only as one of the factors in its production. The pathologic picture of chronic gout is strikingly similar to that seen in chronic infective diseases.

5. **Chronic Gastric Ulcer and Pyloric Stenosis.**—Waterhouse urges gastroenterostomy for the cure of gastric ulcer in such cases as can not be cured by medicinal means. A diet consisting solely of milk, of which four or five pints should be taken daily, a tumblerful every second hour, with, in cases in which much pain is present, the addition of limewater and a minimal

dose of morphin, will cure a large number of recent gastric ulcers, the larger the greater the loyalty with which this treatment is carried out for weeks, or even months. Frequently repeated vomiting, hemorrhage, and pain, indicative of progressive, or at least persistent ulceration, accompanied frequently by anemia, marked dyspepsia, hyperacidity, headache and wasting, demand gastroenterostomy, a procedure which lessens the mortality considerably. Unless definite improvement manifests itself after three months of medical treatment, or unless all serious symptoms have disappeared after six months' treatment, the case should be considered one for surgical rather than for further continued medical aid. Gastroenterostomy is the only procedure which will cure pyloric stenosis with or without dilatation of the stomach. Medical treatment may relieve the condition, but falls far short of producing a cure. Lavage of the stomach may be tried once a day, using pint after pint of tepid normal salt solution until every particle of food debris is washed away and the fluid returns clear. Much benefit may be obtained from the administration of dilute hydrochloric acid just before meals. The only rule of diet is the employment of easily digested nourishment and the avoidance of all starches and sugars as being prone to fermentative changes. The author has performed 31 gastroenterostomies for chronic gastric ulcer and pyloric stenosis, with a mortality of 6.45 per cent. One patient died of profuse hematemesis three hours after gastroenterostomy was performed for repeated hemorrhage from a gastric ulcer. At the autopsy it was found that he had three ulcers, from one of which, undiscovered at the operation, the fatal hemorrhage had occurred. The other patient died from exhaustion, being in a terribly emaciated and feeble condition when the operation was performed.

8. **Adiposis Dolorosa.**—Hammond reports two cases of adiposis dolorosa occurring in sisters, aged 61 and 40 respectively. In the older sister the disease started twenty-six years ago as a deposit of localized fatty swellings in both forearms. At present they are also situated on the thighs and abdomen. They vary in size from a small orange to that of a walnut. The hands, face and feet are quite free. Pain has long been a marked and persistent feature. Associated with this is considerable tenderness when the swellings are touched. There have been no hemorrhages, but the skin is more pigmented than usual. There are no mental symptoms and no change in the thyroid. In the younger sister the disease started some years ago in much the same manner and in the same locality.

The Lancet, London.

July 16.

10 *Bright's Disease and Its Varieties. John Rose Bradford.
11 Remissions and Relapses in Insular Sclerosis. Thomas Buzzard.
12 Two Cases of Hemiplegia. T. R. Bradshaw.
13 Vincent's Angina. H. W. Bruce.
14 *Diet in Chronic Heart Disease. Theodor Schott.
15 The Physiologic Action of the Nauheim Springs and the Indications for Their Use, Chiefly in Disorders of the Circulation. Paul C. Franze.
16 Contributions to the Study of the Action of Sea-snake Venoms. Thomas R. Fraser and R. H. Elliot.
17 Action of the Venom of Bungarus Coeruleus (the Common Krait). R. H. Elliot, W. C. Sillar and George S. Carmichael.
18 *Case of Chronic Streptococcus Endocarditis Treated by Serum Specially Prepared by Use of the Organism Obtained from the Patient. T. J. Horder.

10. **Bright's Disease and Its Varieties.**—This is the first of a series of lectures to be delivered by Bradford on Bright's disease. He holds that it is doubtful that Bright's disease is an affection limited to the kidneys. A great many difficulties that have arisen in interpreting the phenomena of Bright's disease and other affections of the kidney have been due to a want of complete accord between the known facts as to the physiology of the kidneys and certain phenomena observed in disease of these organs. Our knowledge of the nature of disease varies directly with the extent of our knowledge of the physiology of the organs concerned. Physiology, pathology, and medicine go hand in hand, and each is essential to the others. At the present time there is no conclusive evidence in support of the existence of an internal renal secretion. On the other hand, it is impossible to explain the general disturbance of nutrition accompanied by marked wasting, and the notable increase in the excretion of urea seen after removal of portions of the kidney as simply dependent on some deficiency in its excretory activity. The formation and excretion of urea are controlled in some way by the amount of kidney substance present, inasmuch as animals possessing one-third of their initial kidney weight were capable of living for indefinite periods showing no other symptom of disorder than an increase in the amount of urinary water, whereas when but one-fourth remained, death occurred associated with an increased excretion of urea, together with great wasting. Bradford emphasizes the similarity that exists between experimental results and those seen in the human subject as a result of disease. Ligature of the renal arteries, double nephrectomy, and ligature of both ureters, are all followed by the same results, producing symptoms more comparable to those seen in calculous obstruction, and described as latent uremia in the human subject, than to the acute uremia seen in other renal diseases. The view has, however, been held in human medicine that this clinical picture known as latent uremia is characteristic of calculous obstruction. The author urges that this is not really the case, and it is simply that calculous anuria is the most common condition in which it is seen owing to the frequency of this malady and a precisely similar clinical picture is seen in quite a number of other renal conditions. The suppression of the functions of the healthy kidneys in man or in animals induces a set of symptoms that should be spoken of as those of latent uremia and not those of ordinary acute, subacute or chronic uremia.

14. **Diet in Chronic Heart Disease.**—According to Schott the two fundamental principles in the regulation of diet in chronic heart disease are the following: Patients must avoid everything which excites the action of the heart; and everything must be avoided which embarrasses the action of the heart. The substances which most readily cause excited action of the heart are strong coffee, strong tea and strong alcoholic liquors. Moderate quantities of ordinary water or milk are the best beverages; next in order come tea or coffee, both of them with copious addition of milk. Cocoa deprived of its fat is good, but chocolate is seldom found to agree well. With respect to the second rule, the patient should avoid taking enough to cause considerable distension of the stomach, and he should eat nothing which is difficult of digestion or tends to produce flatulence. Such injudicious indulgences may be harmful in three ways: 1. The diaphragm is pushed up against the lungs so that respiration is impeded, and the shortness of breath and dyspnea thence arising are peculiarly injurious to sufferers from heart disease. 2. The distended stomach also presses the diaphragm directly against the heart, forces the heart upward and outward, displacing it in the direction of its base in such a way that its action can only be carried on with a greatly increased effort. 3. In like manner the intra-abdominal pressure is augmented, and the abdominal vessels are compressed; the heart is weakened and the cardiac muscle not infrequently suffers in the struggle. These patients should take small amounts of food at short intervals; every three hours is often enough, the last meal of the day being taken two and a half or three hours before bedtime. Each meal ought to have about the same nutritional value because this, apart from its utility for digestion, conduces best to a uniformly beneficial effect on the heart. Soups, because of their bulk and low nutritive value, should be taken in small amounts, not over a few tablespoonfuls. New bread, whether brown or white, and freshly baked cakes are to be avoided totally. Toast, zwieback, made without sugar, or the crust of rolls, may be taken. Among vegetables the following are to be avoided: beans, peas, lentils, sauerkraut, red cabbage, leaks, onions, garlic and celery. Potatoes in the form of puree, or simply boiled in water, are to be preferred to baked potatoes. Turnips and carrots should be eaten only when fresh and young. Animal food in its various forms, especially fish and poultry, are allowable, except eels, fat goose breasts and goose liver pies, rich sauces or mayonnaise, salmon, lobsters and crabs. Oysters, mussels and game seldom do harm if fresh and prepared in a plain style. Highly smoked

and salted fish or meat are objectionable, because the great thirst which they produce easily tends to too much water being drunk. Among fatty substances butter and cream are the best. Fat bacon, ham fat, oil, hot seasoning, red and black pepper are injurious. All foodstuffs containing these substances are to be avoided. Vegetable salads without hot seasoning, and particularly when made with lemon juice are permissible. Easily digestible fruit, stewed with the addition of a little sugar can be recommended, particularly on account of its favorable influence on gastrointestinal peristalsis. For the same reason raw fruits, such as apples, pears, apricots, peaches and oranges are often desirable. Berries of all kinds, pineapples, walnuts, filberts, and Brazil nuts are injurious. Ice in any form, whether it is iced drinks, fruit ices, or puddings, should be abstained from. Nor should anything very hot be taken. It is impossible to urge too strongly that sufferers from heart disease always require a mixed diet. Too much animal food may cause irritation of the kidney, with hypertrophy and dilatation of the heart. An entirely vegetable diet is no less injurious. Schott regards tobacco with great disfavor. In tobacco there are many substances besides nicotin that may act injuriously, and for this reason the partial removal of the alkaloid, a process to which tobacco has often been subjected in recent years, is no guarantee that much smoking may have no ill-consequences. He recommends giving up smoking altogether or else indulging in it most sparingly, and in the latter case, using very dry tobacco and a long mouth-piece or pipe. Gentle exercise in the open air for a short time after meals is preferable to sitting still. It is quite essential that the individual characteristics of the patient should be studied, and that the treatment should be modified in correspondence with the symptoms.

18. **Chronic Streptococcus Endocarditis Treated by Serum Injection.**—The ideal serum for the treatment of any particular patient suffering from streptococcus infection, says Horder, must be one obtained by the use of the organism actually causing the disease in that patient, for this serum only can be guaranteed to be specifically associated with the causal agent of the disease. Horder reports a case of chronic streptococcus endocarditis, the first of its kind in which treatment has been by serum thus prepared. The serum treatment failed, and possible explanations for this failure are the following: 1. The infection was a mixed one, but only the streptococcus grew in culture. The streptococcus may have been little or not at all pathogenic. 2. Neither of the sera obtained possessed the "immune body," or possessed it in too small a degree to be of service to the patient. 3. The patient's blood was deficient in the "complement" necessary to fix the "immune body."

Semaine Médicale, Paris.

19 (XXIV, No. 27.) *La retention de l'uréé dans l'organisme malade. C. Achard and G. Paisseau.
20 *Traitement du lupus par les radiations uraniques de Becquerel. Bouveyron. Abstract.
21 *Le sucre à hautes doses contre l'amaigrissement des neuropathes. R. Toulouse. Abstract.

19. **Retention of Urea.**—Achard and Paisseau discuss what becomes of the urea once formed in the organism, and the consequence of its retention. They have established that constant and simultaneous doses of 5 cg. of methylene blue and 20 gm. of urea are eliminated through the kidneys with curves which are nearly identical. In health the curve rises rapidly, remains at a high level and then abruptly drops as the two are discontinued. In interstitial nephritis the ascent is more gradual and the plateau less marked. From the clinical and experimental research described, it seems evident that when the elimination of urea through the kidneys becomes insufficient, the urea accumulates in the blood, sometimes to ten times the normal proportion, as observed in cases of uremia. But the urea is most certainly not the cause of the uremia, as they prove by various facts cited. The urea in the blood should more justly be regarded as not the cause of the uremia, but as the witness of the retention of other bodies, more toxic than the urea itself. The consequences of this excess of urea in the blood are chiefly of a physical nature. The blood becomes more concentrated, and, on account of the regulating dilution which then ensues, the amount of blood is increased and the blood pressure rises. As a further consequence of these regulating phenomena, the blood may be turned into the tissues, and this diversion may induce a set of secondary phenomena. The urea takes along with it salted water, and hence the secondary retention of a certain quantity of chlorids to produce this secondary, salt hydratation of the tissues, manifested by an increase in weight, and finally by edema. The larger proportion of urea in the fluids laving the cells may have a disturbing effect on their nutrition, as urea, in spite of its slight toxicity, is still more irritating to the cells than an equal proportion of sodium chlorid. When the retention ceases, the tissues discharge their excess of urea into the blood, and this in turn into the urine. The consequences of its retention also cease with it, especially the secondary retention of the chlorids, and thus we behold a salt crisis follow the urea crisis. Diuretics may sometimes induce these critical discharges, and urea itself is sometimes able to do so. Urea and sodium chlorid thus play very similar rôles in the organism, they act in the same sense and produce analogous effects, only there is a great difference in the intensity of their action. Urea is a waste product which the body is anxious to eliminate. It tolerates only a small proportion of it in the humors, while salt is a necessary element and a reserve supply is always kept on hand. Thanks to its abundance and the small size of its molecules, it is the most readily mobilized, and is the regulating substance *par excellence*, re-establishing the physico-chemical balance in the organism, especially in case of retention of urea.

20. **Treatment of Lupus by Weak Radioactive Emanations.**—Bouveyron of Lyons has been much impressed with the efficacy of a dressing containing 5 gm. of uranium nitrate in the treatment of an old and rebellious case of lupus. The nitrate is from 5 to 20,000 times less powerful than radium in its radioactivity, but its continuous application in the form of a dressing cured the lesion in less than a month. A patch on the other side of the face, left for control purposes, showed no signs of retrogression.

21. **Sugar to Combat the Emaciation of Neuropaths.**—Chauveau proclaims that sugar is the typical food, and Toulouse has been applying it to fatten emaciated patients at the insane asylum at Villejuif. The sugar was given in amounts of 50 to 500 gm. a day, in addition to the ordinary diet. Patients thus treated gained a third of their weight in the course of a few months. The sugar seemed to exert the greatest influence in this respect when it was given with a milk diet. It was always well tolerated and never induced glycosuria unless the subjects were already diabetic. Generally, one to three ounces of sugar were given in the form of a syrup, after meals, and seemed always to be relished.

Archiv f. Verdauungs-Krankheiten, Berlin.

Last indexed XLII, page 1523.

22 (X, No. 3.) *Appearance and Determination of Dissolved Albuminoids in Feces. O. Simon (Dresden).—Ueber das Vorkommen und den Nachweis gelöster Eiweisskörper in den Fäces.
23 *Tendency to Iodism and Study of Iodin-Starch Reaction of Stomach Content in Case of Hyperacidity. A. Bjelogolowy.—Ueber Neigung zu Iodismus und über die Jod Stärke Reaktion des Mageninhaltes bei Hyperacidität.
24 *Untersuchungen über Schleim im Stuhl (mucus in stools). C. Lorentzen (Copenhagen).
25 *Behavior of Pepsin in Various Stomach Affections. W. Robin (Warsaw).—Ueber das Verhalten des Pepsin bei verschiedenen Magenkrankheiten.
26 *Further Experiences with "Occult" Bleeding in the Stomach. O. Schloss (Boas' clinic, Berlin).—Weitere Erfahrungen über Nachweis und Vorkommen von "occulten" Magenblutungen, speziell bei Achylie und Gastritis acida. Prüfung des Heidwerts von Wismut bei Ulcus ventric. mittelst der Proben auf "occulte Blutungen."
27 *Pathogenic Importance of Molds. F. Schilling (Leipsic).—Die pathogene Bedeutung der Schimmelpilze.

22. **Dissolved Albuminoids in Feces.**—Simon has modified Ury's reaction for detection of albumoses in the feces, and states that their presence always indicates some disturbance in intestinal functioning, but not its nature. Ury's reaction is based on the fact that 50 per cent. alcohol precipitates the albuminoids in an acetic acid solution, but not the albumoses; the latter are rendered evident by the biuret reaction after de-

struction of the urobilin by boiling with hydrogen dioxid. The feces are mixed with tepid water, decanted, filtered, and the filtrate stirred in a goblet with a little fine gravel, and then filtered again. Normal stools react always neutral or alkaline, never acid. Addition of acetic acid induces cloudiness in normal stools, which in pathologic cases amounts to a thick precipitate. This precipitate is again dissolved in the excess of acetic acid, and a little potassium ferrocyanide is added. In normal conditions the fluid remains clear on a Schmidt test diet. On a coarse, mixed diet there may be a slight cloudiness, but in pathologic conditions there is often a thick precipitate. In six cases exhibiting albumin, albumoses were constantly detected by this procedure. The striking coincidence of albumin and albumoses may render the determination of the latter superfluous. Albumoses were never found in any of the tests on healthy subjects.

23. **Coincidence of Tendency to Iodin Intoxication and Hyperacidity.**—Netschajeff noticed that symptoms of iodin intoxication coincided with hyperacidity in 2 cases under his observation. This suggested research to determine whether this was a casual coincidence or a general rule. Nineteen patients exhibiting hyperacidity displayed a marked tendency to iodism in every instance but 3. Certain gastric affections are accompanied by the production of nitrites which split the potassium iodid and liberate nascent iodin. This nascent iodin is unmistakably the cause of the tendency to iodin intoxication, and its amount is dependent on the amount of nitrites in the stomach and also on the presence of an acid medium, such as is afforded by hyperacidity of the stomach content. The nitrites are evidently produced by defective action of the gastric juice on the swallowed saliva. It is possible that some of the symptoms hitherto attributed to hyperacidity may be due to the presence of these nitrites in the stomach content. This is especially liable in the cases of "masked hyperacidity." This assumption would explain the cases in which the subjective symptoms, oppression in the stomach, pains, eructations, vomiting and loss of appetite all vanished with the vanishing of the iodin-starch reaction and of the Riegler nitrite reaction, although the total acidity and the percentage of HCl persisted unmodified.

24. **Investigation of Mucus in Stools.**—The stools of all the patients at Boas' clinic are examined systematically. The patients use jars, and the stools are transferred at once to a covered glass jar and set in the "Stinkschrank," a closed cupboard with an opening into a chimney. After noting form, shape, amount, etc., the stools are placed on a Boas gallstone sieve under a faucet, over a drain. The edge of the sieve is about 8 cm. high, and the netting is rather coarse. This sieve stands in a second, larger sieve, with a much finer netting—an improvement over the single original apparatus. Water from the hydrant washes away all but the harder particles and mucus, which are left almost entirely odorless. The residuum is transferred to black vessels to be photographed at need. The mucus can be studied with various stains. It occurs constantly in all stools, although in health the proportion is small, but still macroscopically evident. When large amounts of mucus are detected in the stools, a history of digestive disturbances can always be elicited, either existant or preceding, and frequently no cause can be discovered except the catarrhal conditions demonstrated by the presence of the mucus. Many such cases are diagnosed as dyspepsia only, when careful examination of the stools will differentiate the exact cause, and suggest successful treatment. Three such cases are described in detail, to illustrate the advantages of systematic examination of the feces. One patient had suffered for years from constipation and dyspeptic symptoms, the others from diarrhea and dyspepsia. Treatment had hitherto been directed to the stomach, but without avail. The stools in one case were apparently normal, but discovery of an abnormal proportion of mucus suggested catarrh of the intestines, and treatment instituted on these lines rapidly restored the patient to health. In another case all the symptoms indicated intestinal catarrh, but the stools were found normal and the trouble was finally traced to a cancer.

25. **Pepsin in Stomach Affections.**—Robin's researches in this line at Reichmann's laboratory at Warsaw were conducted on a large number of patients. The Hammerschlag test was applied 160 times; 43 other patients with hyperacidity were also tested, and 17 with hypacidity, and 40 with lack of free HCl. He found the Hammerschlag test eminently practicable and reliable, and that the normal proportion of pepsin may be accepted as 50 to 70 per cent. In case of gastric carcinoma the proportion is low, generally between 0 and 36, but occasionally the proportion may be normal. In simple gastric achylia the pepsin was totally absent in 50 per cent. of the cases, and in the others never amounted to more than 36 per cent. He encountered cases in which the secretion of pepsin was abnormally profuse, although the proportion of HCl was normal, and proposes to call this condition hyperpepsinia.

26. **"Occult" Gastric Hemorrhage.**—Schloss remarks that time is confirming more and more the truth of Boas' announcements in regard to the diagnostic value of invisible amounts of blood in the stomach content or feces. He has made more than 500 examinations of feces from this standpoint to determine these occult hemorrhages by the Weber test. (See THE JOURNAL, 1903, xli, page 1565, abstract 92.) In 20 cases of achylia and gastritis anacida the findings were negative in 188 of the tests and positive in 6 only, in most of which the bleeding could be traced to some extraneous cause. In 9 cases of gastric ulcer the effect of administration of bismuth was studied by this means, and in no instance could any permanent benefit from the bismuth—in respect to arrest of the bleeding—be detected. During its administration the bleeding was less, and in a few instances ceased entirely, but so soon as the drug was suspended the losses of blood recommenced. Bismuth may be regarded as a valuable adjuvant for the healing of an ulcer, but the main reliance should be on repose and dieting. The bismuth evidently mixes with the secretions to form a mass which plugs up the orifices of the minute blood vessels causing the hemorrhages.

27. **Pathogenic Importance of Hyphomycetes.**—Schilling thinks that this group of fungi has been rather neglected by pathologists. He describes the "delicatessen stores" as hotbeds of these forms of fungus growth, and remarks that the advantages of "stale bread" are frequently counterbalanced by the colonies of fungi proliferating on the bread. He reviews the various works on the subject of hyphomycetes, and relates some cases of digestive disturbances due to their action.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

28 (XXX, No. 27.) *Quinquad's Sign of Abuse of Alcohol. P. Fürbringer.—Zur Würdigung des Quinquaudschen Zeichens bes. in seiner Beziehung zum Alkoholmissbrauch.
29 Zur Gewinnung spezifischer Substanzen aus Typhus-Bazillen. L. Brieger and M. Mayer.
30 Eine spezifische Prezipitin-Reaktion bei Bothriocephalus latus beherbergenden Menschen. S. Isaac and von den Velden.
31 *Ueber Heilungsaussichten und Behandlung der puerperalen Pyemie. E. Opitz. (Commenced in No. 26.)
32 *Ueber das Milzbrand-Serum und seine praktische Anwendung (anthrax serum). G. Sobernheim (Halle).
33 *Ueber Mefeseifen (yeast soaps). Dreuw (Unna's Dermatologicum, Hamburg).
34 *Xiphopagus-Duplicitas parallela. H. Singer.
35 Progress in Diagnosing in Psychiatry. L. W. Weber (Göttingen).—Fortschritte in der psych. Diagnostik. (Commenced in No. 26.)
36 *Letter from America. A. Hoffa.
37 (No. 28.) *Simultaneous Primary Tuberculous Infection Through Intestines and Lungs. Ribbert.—Ueber gleichzeitige primäre tuberkulöse Infektion durch Darm und Lunge.
38 *Study of Transformation of Tubercle Bacilli in Cold-blooded Organism. A. Weber and Taute (Berlin).—Zur Frage der Umwandlung der Tub.-Baz. im Kaltbluterorganismus.
39 *Increase in Nitrogen and Albumin in Stomach Rinsings and Its Diagnostic Significance. W. Berent and P. Gutmann.—Ueber vermehrten Stickstoff- und Eiweissgehalt der Magenspülflüssigkeit und seine diagnostische Bedeutung.
40 *Zytologische Untersuchungen des Liquor cerebrospinalis. E. Schlesinger.
41 Zur Technik der serodiagnostischen Reaktion mittels des Fickerschen Typhus-Iagnostikums. Clamann.
42 *Ueber die Bedeutung der Lungen-Infusionen für die Diagnose und Therapie der Lungen-Tuberkulose. Die Technik der pulmonalen Infusion beim Menschen. P. Jacob and A. Rosenberg (Berlin). (Commenced in No. 26.)
43 J. Doutrelepont zum 70 Geburtstaage (birthday).
44 *Report Concerning the Russian Wounded at the Battle of Chemulpo. Wada (Japan).—Bericht über die in der Schlacht von Chemulpo verwundeten Russen.

28. **The Quinquaud Sign of Abuse of Alcohol.**—In 1893 Quinquaud of Paris discovered a means of detecting immoderate use of alcohol by the crepitation of the phalanges. The fingers are

spread apart and placed vertically on the palm of the examiner. Nothing is felt for the first two or three seconds, and then some slight shocks, as if the bones of the fingers hit sharply against each other and against the palm of the examiner. Fürbringer has tested 472 subjects, and confirms the value of the sign as an evidence of nervous restlessness, especially in case of alcoholic intoxication. The sign is perceptible when the nervous restlessness is not appreciable by other means. The crepitation becomes exhausted under long testing, but recurs after a period of rest. In his experience, nine out of every ten subjects who responded negatively to this test were not drinkers in the ordinary sense of the term. When the response is pronounced, the probabilities are three to two in favor of the subject's being a hard drinker. A slight to moderate positive response is not a reliable sign of the abuse of alcohol; the non-drinkers predominated in his tests in the proportion of three to one.

31. **Treatment of Puerperal Pyemia.**—Opitz describes the system pursued at Olshausen's clinic in the treatment of puerperal pyemia to sustain the body in its struggle with the infectious agents and to avert further injurious influences. The nourishment is important, and, beside milk and eggs, the main reliance is on the artificial preparations of albumin in the market, puro, somatose and plasmon. To supply calories in an easily oxidized form, sugar is given in considerable amounts. This induces thirst, which in turn leads to copious drinking, and this washes out through the kidneys the products resulting from the metabolism and destruction of the bacteria. The water supply is further increased by two or three rectal injections of 500 c.c. of physiologic salt solution. Diarrhea should not be combated, but rather promoted. In the 3 fatal cases rebellious constipation was observed. Strict repose is indicated; changing the linen and much bathing are liable to be injurious. The patients should lie on their back and move only the legs. In case of decubitus, it heals remarkably rapidly when the patients are placed on a thick layer of ordinary sterilized clay. Every effort should be made to re-enforce Nature in her efforts to wall off the pus foci in the veins; the slightest movement may knock down the wall she is throwing up around it. The patients are instructed to take deep breaths for a few minutes, repeating this five times a day, to avoid pneumonia from stagnation. Alcohol is never given except to flavor milk, etc., or in the form of wine to induce a certain euphoria. Operative treatment is indicated only in exceptional cases. In case of pronounced pyemia, absolute repose, appropriate nourishment, supplemented by sugar and saline infusions or enemata, afford better results than treatment with alcohol, the after-effects of which are bad. The prognosis may be still further improved by systematic use of nuclein, as Hofbauer has recently advocated, supplemented, perhaps, by antipyrin and intravenous injections of collargol. Opitz has had little personal experience with the latter measures.

32. **Practical Application of Anthrax Serum.**—THE JOURNAL has mentioned Soberheim's method of serum treatment of anthrax in veterinary practice. He has applied it on a large scale in Germany and in South America, and relates his experiences with thousands of animals immunized against anthrax or cured by his treatment. A single injection confers immunity, apparent in ten or twelve days, and it persists for a year or more. The mishaps have been less than one per thousand in 75,000 applications.

33. **Yeast Soaps.**—Dreuw reiterates the advantages of a soap as a medium for medicinal treatment of cutaneous affections, and describes a number of combinations of yeast with various disinfectants for this purpose. The yeast soap proved particularly valuable in treatment of acne of the face, neck and back, in folliculitis and in furuncles. The combination found most effective was a mixture of 2 per cent. salicylic acid, 7 per cent. sulphur, and the neutral yeast soap, made with an excess of grease, which deprives the soap of all irritating properties. This convenient and cheap form of medication combines the antibacterial and keratolytic properties of the acid with the reducing properties of the sulphur and the specific antibacterial properties of yeast, with the non-irritating action of the soap.

34. **Another Xiphopagus.**—Singer gives the photograph of a pair of twin infants united by a bridge of bone and soft parts, connecting the sternums, recently delivered at the hospital at Miskolez, Hungary. Tests with bismuth demonstrated that the intestinal systems of each are separate, and hence he is waiting only until the twins are better nourished to sever the connection between them. The total weight of the xiphopagus at birth was 3,500 gm. He begs for advice as to the best means of intervention in the case. The parents are healthy young peasants. Both heads presented at once, and delivery was impossible until one of the twins suddenly twisted completely around on its transverse axis, and the xiphopagus was born with the feet of one child opposite the head of the other, and vice versa, although their natural position is face to face and parallel.

36. **Hoffa's Impressions in America.**—In this first letter Hoffa expatiates principally on the two subjects which always make such an impression on visiting medical men—the American trained nurse, representing the realization of their highest ideals, and the reporter nuisance.

37. **Simultaneous Primary Tuberculous Infection of Intestines and Lungs.**—Ribbert describes the findings in 3 cases recently observed in which the tubercle bacilli had induced primary glandular lesions by passing through the intestinal walls without causing any appreciable lesion in the latter. In 3 other cases he found primary lesions in the intestines and primary lesions in the respiratory organs, entirely independent of each other, as shown by the direction of the lymph current and circulation. The dual infection in these cases was manifestly due to human bacilli inhaled and swallowed, as it is highly improbable that the simultaneous infection could have occurred from bovine material in the intestines and from inhaled human material in the lungs. The cases further emphasize the danger from a certain number of the human bacilli being swallowed after being inhaled into the nose and throat, thus inducing primary infection of the intestines with human tuberculosis, such as is also liable to occur from ingestion of food contaminated with the same. All these possibilities suggest that more attention should be paid in future to primary intestinal tuberculosis from infection with human material.

38. **Transformation of Tubercle Bacilli in Cold-Blooded Organism.**—The experiments described show that the supposed transformation does not occur in actual fact.

39. **Increase in Albumin and Nitrogen in Stomach Content.**—Salomon's test consists in rinsing the stomach with salt solution one hour after careful lavage of the stomach. The rinsing fluid is tested for nitrogen and albumin, and amounts over a certain standard are evidence of the presence of ulceration, as an ulcerating surface exudes constantly more or less serum and an increased proportion of the constituents of the serum testifies to such a condition. The findings in 32 cases of various stomach affections are tabulated in this communication. They demonstrate that the sign is reliable, and may afford important information, although it is unable to differentiate a simple ulcer from an ulcerating carcinoma. This must be decided by other means, which are usually available.

40. **Cytology of Cerebrospinal Fluid.**—Schlesinger's study of the cerebrospinal fluid in health and disease establishes that lymphocytosis is a valuable aid in differential diagnosis of anatomic from functional affections of the central nervous system.

42. **Pulmonal Infusion in Diagnosis and Treatment of Tuberculosis.**—The experimental and veterinary parts of Jacobi's communication were summarized on page 361 of THE JOURNAL for July 30. He here relates his clinical experiences with 5 patients thus treated. All were women, just entering the second stage of tuberculosis. In others the tuberculin test was applied by direct infusion into the lung. Only one-tenth to one-twelfth part of the ordinary diagnostic dose of tuberculin was required to induce the reaction in case the tuberculous process was localized in the lung. When located elsewhere the ordinary subcutaneous dose was necessary, or even more, in order to induce the reaction. The epiglottis and vocal cords of the seated patient are cocainized and then the region below is sprayed with beta eucain and adrenalin or anesthesin. The infusion is then

be made without eliciting any reflex action. The tracheal spray tube is covered with rubber to protect the parts against injury during coughing. The patients do not seem to mind the coughing, but it should debar from this treatment patients with a tendency to hemoptysis. It has the great advantage that it clears the passages of phlegm to an extent unattainable by any other measure, preparing them for absorption of the infused fluid. The usual therapeutic amount infused was 20 to 30 c.c. of a .01 or .02 aqueous solution of tuberculin, the infusion repeated after the patient had recovered from all signs of reaction—that is, in about three or four days. It is made through a soft, flexible bougie, about 5 mm. thick, with a side opening at the tip and a guide inside, curved like a slender S. It is introduced into the right or left bronchus as desired, and the fluid is slowly injected into the projecting end with a syringe, the patient breathing deep and quietly at the time. Afterward he lies down, and the fluid then makes its way into the upper part of the lungs, sometimes inducing coughing, but never resulting in expulsion of the fluid. By lowering the shoulders the upper part of the lung can be reached by the fluid. The entire procedure is completed in ten minutes. Some of the patients have been under observation for several months, and Jacob is convinced that these pulmonal infusions are harmless, while they possess very decided therapeutic value. He is now testing other medicines on animals, hoping to discover some effectual means of treating suppurative bronchitis, bronchiectasia and bronchial asthma. He has also commenced infusion of substances impermeable to the Röntgen rays to aid in diagnostic radioscopy.

44. **The Russian Wounded at Chemulpo.**—This article is from a Japanese fleet physician and relates the events at the naval battle of Chemulpo, when the Koretz was blown up and the Variag burned. None of the Japanese were injured, but about a hundred Russians were wounded, and they were taken on board English, Italian and French cruisers. A few days later 24 of the wounded Russians were transferred from the French cruiser—the Pascal—to the Japanese floating Red Cross hospital, on account of lack of room on the cruiser. They complained that they had been crowded into narrow, damp quarters on the Pascal and half starved. Their wounds were certainly in bad condition; the physicians on the French cruiser had in most cases merely covered them with iodoform gauze and tied them up. The men were still in the same clothes, and their wounds were suppurating, fetid and gangrenous—reminding one of the pre-antiseptic era. Only two of the soldiers had been given a splint. Wada describes the characteristics of the wounds made by the Japanese shells, and remarks that some of the Russians wailed when the dressings were being changed in a way never observed in the Japanese wounded. Dry sterile gauze was the main reliance, but gauze wet with carbolic acid was used on the gangrenous wounds. The dressings were changed several times a day, and the wounds were covered with healthy granulations in the course of a few days, so that amputation was not necessary in any instance. No fluid antiseptics were used. Wine and brandy, quinin and antipyrin were given internally in case of much fever, and the cases suspicious of erysipelas were isolated. As little use was made of plaster casts as possible, so as not to interfere with the escape of the secretions. The Russians stated that the Variag had had only five beds for the sick, and that the physicians on board had been in such consternation during the engagement that they were unable to dress a single wound, although 70 men had been injured and 30 killed. The Japanese Red Cross Society was aided by a local committee of 30 ladies, who had organized for the purpose several months before, under the leadership of the wife of the Japanese consul. They had met twice a month for instruction in nursing the wounded in war, the lectures being given by the Japanese physician in charge of the hospital and others from the Japanese fleet. In conclusion, Wada offers the suggestion that it would be wise to have the crew of a man-of-war bathe and put on clean clothing before an engagement whenever possible. It would also be a wise precaution to have the clothes previously sterilized with steam or otherise.

Münchener medicinische Wochenschrift.

45 (LI, No. 24.) *Zur Diagnose des Typhus abdominalis. Rolly.
46 Fall von Trypanosomen Krankheit beim Menschen (in man). Günther and Weber (Hamburg).
47 *Ueber die Aetiologie der bösartigen Geschwülste (of malignant tumors). G. Kelling (Dresden).
48 Die Reposition des luxierten Os lunatum. Wendt.
49 Operating by Alternate Day- and Röntgen Light. R. Grashey (Munich).—Das Op. bei abwechselndem Röntgen und Tageslicht.
50 *X-Ray Cure of Severe Case of Splenic Leukemia with Much Enlargement of Spleen. Ahrens (Ulm).—Fall von Heilung einer schweren lienalen Leukämie mit grossem Milztumor durch Röntgenstrahlen.
51 Ein durch Operation geheilter Fall von congenitalem Blasen-Divertikel (of bladder). P. Wulff (Hamburg).
52 Kasuistischer Beitrag zur Differential-Diagnose der Bubonen-Pest. von Basewitz (Brazil).
53 New Model of Breast Pump. J. Ibrahim (Heidelberg).—Ueber Milch-Pumpen und deren Anwendung.
54 Improved Stethoscope. Dinkler (Aix).—Eine Verbesserung des gewöhnlichen Hörrohres.
55 Ein neues sterilisierbares Augentropfglas (eye dropper). F. Becker (Dusseldorf).
56 Ueber Diagnose und Prophylaxe der Typhus abdominalis. F. Wesener (Aix).

45. **Diagnosis of Typhoid.**—In 50 cases of typhoid fever examined by Rolly, typhoid bacilli were found in the blood in 88 per cent. In 16 instances the blood findings were positive before there was any response to the agglutination test, although the latter appeared later in the disease. He tabulates the findings in the 50 cases, and remarks that he was unable to detect any connection between the number of bacteria found in the blood and the eventual course of the disease. It is possible to keep the blood both fluid and sterile by mixing 20 c.c. with 20 c.c. of a solution made by dissolving 5 gm. peptone and 50 gm. grape sugar in 100 c.c. water and boiling for five to ten minutes. The fluid is then distributed in reagent glasses with a capacity of 50 c.c., carefully stoppered. This blood mixture can be mixed with glycerin agar and poured on a Petri dish whenever desired. The growth of the typhoid bacilli in the blood does not seem to be affected by these manipulations. Rolly has further discovered a fluid which holds dead typhoid bacilli in suspension without their sinking to the bottom of the receptacle. Addition of blood serum from a suspected typhoid fever patient then induces agglutination, the findings as perfect and accurate as by the usual technic of the agglutination test. The microscopic picture is the same as when living bacilli are used, but the agglutination does not proceed quite so rapidly—about fifteen to thirty minutes more being required. He inoculates ordinary bouillon with the bacilli, the bouillon filling one-third of an Erlenmeyer jar and sterilized. The jars are then set in the incubator for five days, well shaken two or three times a day. The contents of two or three of the jars are then poured into one, and toluol or formol added in an amount sufficient to cover the top with a thin layer. The jars are then replaced in the incubator for five to ten days, shaking them thoroughly twice a day. They are stoppered lightly with cotton, so that air can enter. Some of the bacilli clump and drop to the bottom, but others remain in suspension, the specific gravity of bacilli and bouillon being the same. The fluid is then ready for use. He takes up as many drops of the fluid as he desires for the strength of the test, using an ordinary medicine dropper, and transfers them to a test tube, to which he adds the drops of serum from another dropper.

47. **Foreign Embryonal Cells in Etiology of Cancer.**—See editorial, page 269.

50. **X-Ray Cure of Leukemia.**—Ahrens' patient was a man of 27; the reds and whites were in the proportion of 1 to 1, and his spleen was twice the size of a man's head. The first symptoms were noted a year before, soon after getting chilled in the rain after violent exercise during the military maneuvers. Ahrens treated him as Pusey and Senn have treated similar cases, and the improvement was so marked after 20 exposures to the *x*-rays that the patient considered himself well, and by the fortieth exposure the spleen and the blood findings were normal once more, and the young man was apparently in robust health. He was dismissed with instructions to return without fail every two weeks to be examined, so that the exposures could be resumed at the slightest suspicious symptom, or, better still, to take two or three sittings every week and

a trip to the mountains as prophylactic measures, avoiding mental or physical exertion. He failed to comply with this advice and resumed his active duties. He returned six weeks later with the story that, after a five-hour march, during which he had been overheated and then chilled, he felt pains in the region of the spleen, and by the next day it began to enlarge, reaching nearly its former dimensions in four days. Quinin had no influence, and the symptoms indicated a severe, acute recurrence. Eleven exposures reduced the size of the spleen to some extent, but the blood findings were not much altered, and the patient soon succumbed to the febrile course of the affection and chronic suffocation. The spleen weighed 6.5 pounds, and contained many infarcts, the liver and bone marrow with the typical leukemic findings. The spleen was exposed for five to ten minutes, and the long bones and sternum for one or two minutes each, during the course of treatment—the tubes very hard ones.

Therapie der Gegenwart, Berlin.

Last indexed page 363.

57 (XLV, No. 7.) *Milk Hygiene and Infant Feeding. Backhaus (Berlin).—Milchhygiene and Sauglingsnahrung.
58 *Behandlung von Hemorrhoidal-Blutungen mittels rektaler Clor-Calcium-Injektionen. I. Boas (Berlin).
59 *Conditions and Limitations of Efficacy of Hypnotics, Especially in Arteriosclerotic Insomnia. A. Homburger.—Ueber Bedingungen und Grenzen der Wirksamkeit schwerlöslicher Hypnotica (Trional und Veronal), mit bes. Berücksichtigung der arteriosklerotischen Schlafstörungen.
60 *Intravenöse Collargol-Injektionen bei septischen und infektiösen Erkrankungen. A. Rittershaus (Bonn).
61 Ueber Lysol-Vergiftung (Intoxication). A. Lange (Altona).
62 Ueber die Behandlung des Pemphigus Neonatorum. L. Ballin.
63 Antagonism of Atropin and Morphin. B. Raaf (Bonn).—Ueber den Gegensatz von A. und M.
64 *Influence of Thiosinamin on Dilatation of Stomach Consequent on Cicatricial Stenosis of Pylorus. M. Glogner (Berlin).—Einfluss des Thiosinamins, etc.
65 Value of Creosote, Externally and Internally, for Glandular Enlargement. A. Hecht.—Zur Behandlung chronischer Lymph-Drüsen-Intumeszenzen.
66 Die Behandlung der Nachgeburtsblutungen (post-partum hemorhage). H. Thompson (Odessa).
67 Successful Eradication of Ankylostomiasis in Hungarian Mines. E. Toth.—Ueber die Ausrottung der Ankylostomiasis in den Bergwerken von Selmeczbanya.

57. **Milk Hygiene.**—Backhaus is an authority on milk hygiene, his views having been put in practice in nearly fifty different institutions. He advocates that the preparation of milk for infant feeding should be done on a large scale in special establishments—not in the household. Three kinds of milk are thus prepared; one as closely identical to woman's milk as it is possible to produce, another a transition between human and cow's milk, and the third milk unaltered, but cleansed by contrifugation, for infants a year old and older. He gives the formulæ for the first and second kinds. In regard to sterilization, he regards pasteurization as injurious, and prefers to have the milk rapidly heated to 102 C. and kept at this temperature for fifteen minutes, and then rapidly cooled. The heat should be applied in such a way as to raise the temperature 10 C. degrees for every minute until 102 C. is reached. Milk thus treated has kept through a journey to India and China and for weeks after arrival, infants taking it to their benefit. Aseptic dairy conditions and keeping the milk constantly chilled may answer without sterilizing in certain cases, under medical supervision. Backhaus has been delivering courses of lectures since 1895 on the preparation of milk for children, his efforts always being toward the centralization of the milk supply.

58. **Treatment of Bleeding Piles with Injections of Calcium Chlorid.**—Boas reviews recent and ancient literature on the subject of the hemostatic action of the calcium salts, which his experience has confirmed. For more than two years he has been treating bleeding piles with rectal injections of 20 gm. of a 10 per cent. aqueous solution of calcium chlorid, injected, early in the morning after the bowels have been emptied. The fluid is retained. In very severe cases he repeats the injection again before retiring. The injections are painless and free from any irritating properties if the pure calcium chlorid is obtained. He has thus cured 25 cases of rebellious hemorrhoidal bleeding, and also a number of other cases of hemorrhages in the rectum from cancer or other cause, and also one case of excessive menstrual hemorrhage. He made the injection in this case a week before the molimen, and the loss of blood was thereafter much reduced. The hemostatic action of the calcium chlorid was pronounced in every instance in his experience, with but two exceptions. In one of the latter the desired effect was attained by supplementary internal administration of extract of hamamelis. The hemorrhoidal nodules are not influenced by the injections, but the bleeding is arrested. In severe cases he advises continuance of the injections daily for four weeks, repeating them afterward two or three times a week, and returning to the daily injection at any reappearance of hemorrhage. Half a dozen cases are described in detail.

59. **Hypnotics in Insomnia.**—The cumulative action of trional and veronal is explained by Homburger as due to the retention of the drug by the usual constipation. When this is combated the drugs are eliminated and there is no cumulative action at the customary doses. He describes his experiences in more than two years' application of these remedies, especially in arteriosclerotic insomnia.

60. **Collargol in Infectious and Septic Affections.**—Rittershaus found that intravenous injection of collargol had a remarkably favorable but transient effect on the subjective symptoms—enough to justify its use—and besides this, it in many cases reduced the temperature and had a beneficial action on the heart and general well-being, although generally these effects were not permanent. In erysipelas, especially the cases with meningitic symptoms, the results were so favorable that he attributes a direct curative influence to the collargol.

64. **Thiosinamin in Cases of Cicatricial Stenosis of Pylorus.**—Three patients were treated with a 10 or 15 per cent. glycerin-water solution of thiosinamin, injected subcutaneously for six to eight weeks. The total amount ranged from 1.45 gm. to 2.2 gm. of thiosinamin. Two were not influenced by the treatment, but the improvement was marked in the third case. The patient was a man of 57 with pronounced gastrectasia. Although the stomach did not retract quite to its normal outline, the subsidence of the symptoms showed that the gastric functions had been restored approximately to normal. The results justify further use of these injections of .1 c.c. of thiosinamin as described.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed XLII, page 844.

68 (LI, No. 3.) Bursting of Membranes Without Interruption of Pregnancy. H. Meyer-Ruegg.—Elhautberstung ohne Unterbrechung der Schwangerschaft.
69 *Grundlagen zur Serotherapie des Streptokokken-Puerperal-Fiebers. M. Walthard (Berne).
70 *Action of Caustics on Living Endometrium. A. Rieländer (Marburg).—Ueber die Wirkung von Aetzmitteln auf das lebende Endometrium. Beitrag zur Therapie der Endometritis.
71 *Die intraperitoneale Implantation des Ureters in die Blase (in bladder). W. Stoeckel (Erlangen).
72 Supernumerary Ureter Debouching in Vagina. Hohmeier (Hanover).—Ueber einen vaginal asmündenden überzähligen Ureter und dessen operative Behandlung.
73 Zur Genese der Placenta Previa. Ahlfeld and Aschoff.
74 Formation of Intervillous Spaces in Early Stages of Pregnancy. J. Voigt (Göttingen).—Zur bildung der intervillösen Räume bei frühen Stadien von tubarer und intrauteriner Gravidität.
75 *Version in Primiparæ with Contracted (Flat) Pelvis, and Suggestion of New Procedure for Severe Cases. P. Brose (Berlin).—Ueber die Wendung bei Erstgebärenden mit engem (plattem) Becken, und die Anwendung eines neuen Handgriffes bei schweren Wendungen.

69. **Serum Treatment of Puerperal Fever.**—Walthard reiterates that antistreptococcus serum can be effectual only when the organism is able to produce antibodies in sufficient quantities to cope with the number of bacteria present. Consequently, if the streptococci are virulent, the serum treatment inevitably fails after the disease has passed beyond the early stages.

70. **Action of Caustics on Living Endometrium.**—Rieländer's experiments and tests have demonstrated that an alcoholic solution diffuses much more rapidly and evenly over the mucosa of the uterus than an aqueous solution. The alcoholic solution is also absorbed more readily. He prefers a Playfair sound to introduce the alcoholic solution. After application of a 30 per cent. alcoholic solution of formalin the eschar resulting from the action of the caustic is being cast off by the end of twenty-four hours, and the regeneration of the mucosa

can commence at once. He did not find the tubes affected by the caustic when a sound of this kind was used. The alcoholic solution can also be used in the form of fusible pencils.

71. **Intraperitoneal Implantation of Ureter in Bladder.**—Stoeckel advocates his technic, emphasizing the importance of allowing the centrifugal stump of the ureter to project some distance into the bladder. The projection retracts during cicatrization. The functional results have been perfect in 17 cases thus operated on at Bonn and Halle, with one exception. The latter case demonstrates that traction between the ureter and bladder is liable to interfere with healing. No other technic to date has shown such good results, confirmed by cystoscopy and catheterization of the ureter. The kidney secretes normal urine and the implanted ureters show no trace of stenosis. He urges the advocates of extraperitoneal methods of implantation and of vaginal operations for uretero-vaginal fistulas, to control with cystoscopy the results attained and compare them with those he reports. His technic has not been modified since his previous publications.

75. **Version in Primiparae with Contracted Pelvis.**—Bröse has delivered all the children alive in 10 cases of primiparæ with contracted flat pelves. He proceeds to version when compelled by prolapse of the cord, irreducible prolapse of the extremities, permanently unfavorable attitude of the head, or absolute arrest of the birth—regarding always the condition of mother and fetus. He aids delivery by deep incisions in the vagina and perineum and in the os, to overcome the resistance of the contracting muscles and to prevent the head's boring into the wall of the lower segment of the uterus. To assist in the version he introduces his left hand between the head and cervix wall into the cavity of the uterus, after drawing down the foot with the other hand. The hand in the uterus protects the wall of the cervix, and counteracts the resistance of the constriction so that the head slips smoothly along the volar aspect of the hand as traction is exerted on the foot.

Riforma Medica, Palermo and Naples.

Last indexed page 292.

76 (XX, No. 16.) *Effect of Digitalis on Blood Pressure. C. Gennari.—L'azione della digitale suilla pressione sanguigna nei cardiopatici, con alcune considerazione sui rapporti fra la pressione arteriosa e la venosa.
77 *La siero-terapia della epilessia col metodo Ceni. T. Massei (Terni's laboratory, Messina).
78 *La subcontinua tifoidea. G. Baccelli (Rome). Abstract.
79 (No. 17.) *Il metodo de Endo per la differenziazione del bacillo di Eberth. G. Ruata.
80 L'anataomia patologica e il delirio acuto (cefalopatia parenchimale acuta diffusa?). U. Alessi.
81 Case of Juvenile Tabes. L. Patola.—Contributo alla statistica della tabe giovanile.

76. **Action of Digitalis on Blood Pressure.**—Gennari reports clinical and experimental research which demonstrates among other points that the blood pressure in heart affections is usually increased on account of the peripheral resistance and the congestion in the internal organs, especially in the kidneys. The increased blood pressure is a compensating phenomenon to counteract the great increase in the venous pressure. When the left ventricle becomes too weak to increase its pressure, and the blood pressure consequently is lowered, the prognosis is unfavorable. Digitalis, by inducing diuresis and thus reducing the resistance and the congestion, is able to reduce the blood pressure to normal.

77. **Serotherapy of Epilepsy.**—Ceni's method of serum treatment of epilepsy was described in THE JOURNAL, xxxviii, pp. 789 and 843. His communication on the subject won for him the Craig Colony prize in 1902. Mazzei gave the treatment a thorough trial in 5 severe cases of epilepsy, noting the remote results after two years. No effect was perceptible in one instance, but all the other patients showed pronounced improvement. One case in particular was interesting, as the epilepsy was of a severe type and accompanied by various degenerative stigmata. The improvement in this instance was less durable than in the others. He is convinced that the Ceni technic of serum treatment may prove a most valuable adjuvant to other measures. It is simple and convenient, the patient continuing at his usual occupations, and in charge of his family physician, if desired, the serum treatment merely supplementing the ordinary measures. The serum is taken from the patient and it is thus an anti-autocytotoxin. Other patients are being treated in the same way, but sufficient time has not elapsed for final judgment of the results.

78. **Typhoid Subcontinuous.**—Baccelli applies this term to a form of malarial infection which simulates typhoid fever, but in which the symptoms are due to the action of the malaria parasite on the blood and its paralyzing effect on the nerves. The spleen may be enlarged as in typhoid fever and the onset of the fever may be sudden and it may persist with increasing intensity, with no history of any prodrome. The fever, however, usually lacks the progressive exacerbations of typhoid and occurs more suddenly, while the remissions are more pronounced and are frequently accompanied by sweats and subsidence of other symptoms. In the subcontinuous, headache is rare and is permanent, usually frontal, and the sclerotic has a subicteric tint, the mucosæ are less dry, there is no tremor of the tongue, cough, catarrh of upper air passages or fibrillary contractions of facial muscles. On the other hand, delirium is more frequent at the onset of the disease, and pronounced jactitation—restless tossing about. There may be abdominal symptoms, simulating those of typhoid, but they are generally absent. When noted they are usually paroxysmal. There is none of the regular progression of the symptoms characteristic of typhoid from Hippocrates' day to the present. The delirium, meteorism, etc., may appear the first day or may occur at any time or not at all, and the entire remission of the symptoms between the attacks and their transitory character speak in favor of malaria. The discovery of the typhoid or of the malaria germ is not conclusive, as either germ may coexist with the other. Negative findings are also inconclusive.

79. **Endo's Technic for Typhoid Differentiation.**—Ruata has been testing the method of differentiating the typhoid bacillus which has been published by Endo of Kitasato's laboratory. The bacilli are grown on a medium containing fuchsin decolored by sodium sulphite. The medium is transparent and shows up well the colonies of the typhoid bacilli, which are colorless, while the colonies of colon bacilli restore the red color to the medium. Ruata did not find the test very reliable, certainly not superior to other color differentiating tests.

Rousskii Vratch, St. Petersburg.

Last indexed XLII, page 809.

82 (II, No. 39.) *Narrow Chests in Children. I. V. Troitzky.—Uzkaya grud v dyetskom vozrastye.
83 *Attempt to Immunize Man Against Diphtheria Toxins and Study of Active Immunization in General. G. N. Boldireff.—Opit immunizatzii tchelovyeka diphtherinim toxinom i ob aktivnoi immunizatzii voobshe.
84 *Firearm Wounds of Abdomen. B. K. Finkelstein.—Ob operativnom lyetchenii ognestryelnikh ranenii briushnoi polosti.
85 *Attempt to Regulate School Hours by Physiologic Data. V. S. Ostantchuk.—Opit opredyeleniya prodolzhetelnostiutchebnago dnya, etc.
86 (No. 40.) Surgery as a Science and Art. N. M. Volkovitch. Khirurgiya, kak nauka i iskusstvo i vospitatelnii zadatchi khirurga.
87 Case of Pneumonia and Pneumococcus Endocarditis and Pericarditis. I. V. Sakhatzki.—Slutchai fibrinoznago vospaleniya legkikh, oslozhnennago pneumokokkovim endo- i peri-serditom.
88 *Nyekotoriya osobennosti temperaturi pri perityphliti. M. I. Rostovtzeff.
89 Fibromas in Anterior Abdominal Wall. M. N. Poroshin.—O fibromakh perednoi briushnoi styenki. With review of literature.
90 *Sanitary Supervision of Illuminating Gas. P. N. Lashtchenkoff.—Osnovi sanitarnago nadzora za svyetilnim gazom. (Concluded.)
91 (No. 41.) *Shiga Bacillus in Dysentery. G. N. Kazarinoff.—Palotchka.—Shiga kak vozbuditel krovavago ponosa.
92 Anatomy of Radial Artery. K. I. Susloff.—O podkozhnom polozhenii lutchevoi arterii v nizhnei 3/4-nye predpletchya.
93 *Strychnin in Sciatica. T. O. Zartzin.—O lyetcheni syedalishtchnoi neuralgii strychninom.
94 (No. 42.) *Intraperitoneal Rupture of Bladder. I. P. Seldovitch.—O vnutribriushinnikh razrivakh motchevogo puzirya. (Commenced in No. 41.)
95 Paratyphoid or Coli-bacillosis? D. D. Pletneff.—K kasuitikye simularushtchikh typh zabolyevanii.
96 Operative Treatment of Trachoma. Y. A. Luria. Ob op. lyetchenii trachomi.

82. **Narrow-Chested Children.**—Troitzky emphasizes the importance of narrow chests in the pathology of the young. They not only afford a predisposition to respiratory affections but, from the deficient oxidation of the blood, have a general baleful effect on the child's development, inducing local congestions

and lowering its resisting powers in every direction. When a child is seen to be developing a narrow chest every effort should be made to expand it and favor its normal development by hygiene and exercises. Any deviation from the laws of growth leads in the childish organism to many discords. It is the task of the pediatrist to recognize these deviations in their incipient stages and restore conditions to normal before pathologic processes have become installed. He will thus help to develop robust, strong, life-enjoying people, capable of generating in turn similar offspring. Watch out for the narrow chest and insure its proper development before it is too late. He quotes Lane's article in *Pediatrics* 1901, No. 1, besides a long list of French and German references.

83. **Self-Immunization with Diphtheria Toxins.**—Boldireff experimented on himself, injecting diphtheria toxins for thirty-six days into the cellular tissue at various points. The doses ranged from .0001 to .8 c.c. of diphtheria toxin. His blood was examined every day, and it finally acquired an antitoxic power equivalent to .4 of a Behring unit. He tabulates the findings in urine, temperature, etc., during the experiments, his general condition remaining unimpaired, the urine, temperature, etc., normal. He gained slightly in weight. Similar research on dogs showed a like result, namely, that full protection can be conferred by active immunization with minute amounts of diphtheria toxins, even a very small proportion of antitoxin in the blood proving sufficient to protect the animals. He refers to somewhat similar research by Dverzhgovsky in 1902, who injected into his own person extremely large doses of diphtheria toxins up to 1700 times the smallest fatal dose for guinea-pigs, several times the otherwise fatal dose for man.

84. **Treatment of Firearm Wounds of Abdomen.**—Finkelstein reports 6 cases. Two patients refused operation and both died. Laparotomy is generally advisable even when the stomach alone is apparently injured. In one such case the liver and pancreas were found to have been injured also, although causing no symptoms at first.

85. **The School Day.**—Ostantchuk argues that the hours spent in brain work in the lower grades of the public schools should not exceed 2.7 to 3.5 hours a day or 22 to 27 hours a week, and no home study should be allowed. He bases these conclusions on his observation of the work of the heart and other organs and physiologic research on fatigue.

88. **Temperature in Appendicitis.**—Rostovtzeff has studied the course of the temperature in 52 patients with appendicitis, and found that in the majority of the severer cases the maximum temperature was observed between 9 and 10 p. m. This maximum was observed at this late hour twice as often in the severer cases as in the milder ones, and hence may be useful for the prognosis of the affection and the indications for operation.

90. **Standard for Illuminating Gas.**—Lashtchenkoff contends that the supervision of the gas supply should be in the hands of the boards of public health, who should insist on a standard quality.

91. **Experimental Study of Shiga Bacillus.**—Kazarinoff reviews the literature, including the articles of American writers that have been published in Europe, and reports the results of extensive experimental research. His conclusions are that the Shiga bacillus is undoubtedly the cause of the dysentery of temperate climates, while the *Amœba coli* is the pathogenic factor in the tropics.

93. **Strychnin in Sciatica.**—Zartzin reports that all the symptoms rapidly subsided under strychnin in 4 out of 9 cases of severe sciatica thus treated, and in 3 cases the symptoms were materially improved. The results observed were much superior to those he had ever attained by any other measures. He injected .001 c.c. of the strychnin nitrate subcutaneously, according to Tchavoff's directions. The injections were kept up daily or twice daily in the first case, in which the sciatica was of ten years' standing, the patient a woman of 35. Within five hours of the first injection the pain had much diminished and the normal conditions were apparently restored by the thirteenth injection, but they were continued until twenty-six had been made. There has been no recurrence during the months since. The injections were made in the buttocks and the dose of .001 c.c. was never surpassed. The results were negative in only 2 instances.

94. **Intraperitoneal Rupture of Bladder.**—A German counterpart of this article was summarized in THE JOURNAL, on page 1523 of the last volume.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A TEXT-BOOK OF MECHANO-THERAPY (Massage and Medical Gymnastics). For Medical Students, Trained Nurses and Medical Gymnasts. By Axel V. Grafstrom, B.Sc., M.D., Attending Physician to the Gustavus Adolphus Orphanage, Jamestown, N. Y. Second edition, revised, enlarged and entirely reset. Cloth. Pp. 200. Price, $1.25 net. Fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904.

THE STUDENT'S HANDBOOK OF SURGICAL OPERATIONS. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., F.R.C.S., Sergeant Surgeon-in-Ordinary to H. M. the King. New edition, revised by the author and Jonathan Hutchinson, Jr., F.R.C.S., Surgeon in the London Hospital. Cloth. Pp. 486. Price, $2.50 net. Chicago: W. T. Keener & Co.

DISEASES OF THE NOSE AND THROAT. By D. Braden Kyle, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Third edition, thoroughly revised and enlarged. With 175 illustrations and 6 chromo-lithographic plates. Cloth. Pp. 669. $4.00 net. Philadelphia, New York, London: W. B. Saunders & Company, 1904.

FRIEDBERGER AND FROHNER'S VETERINARY PATHOLOGY (Authorized Translation.) Translated and edited by M. H. Hayes, F.R.C.V.S., with Notes on Bacteriology by Dr. G. Newman, D.P.H. Vol. 1. Cloth. Pp. 519. Price, $4.00 net. London: Hurst & Blackett, Ltd. Chicago: W. T. Keener & Co. 1904.

MATERIA MEDICA FOR NURSING. By Emily A. M. Stoney, Superintendent of the Training School for Nurses in the Carney Hospital, South Boston, Mass. Second edition, thoroughly revised. Cloth. Pp. 300. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Company. 1904.

CLEFT PALATE AND HARELIP: The Earlier Operation on the Palate. By Edmund Owen, M.B., F.R.C.S., Surgeon-in-Chief to the French Hospital. Cloth. Pp. 111. Price, $1.00 net. Chicago: W. T. Keener & Co. 1904.

ADENOIDS. By Wyatt Wingrave, M.D., Physician and Pathologist, Central London Throat and Ear Hospital. Cloth. Pp. 128. Price, $1.00 net. Chicago: W. T. Keener & Co. 1904.

NEW PATENTS.

Patents of interest to physicians issued from June 21 to July 12, 1904:

763248. Instrument for detecting and correcting defective vision. Francis M. Bishop, Newark Valley, N. Y.
762881. X-ray apparatus. Wm. B. Churcher, Cincinnati.
763304. Surgical or operating pad or cushion. Christian W. Meinecke, Jersey City, N. J., and D. Hogan, Hoboken, N. J.
763081. Applicator. Ezra E. Tope, Scio, Ohio.
763657. Electrical apparatus for therapeutical purposes. John P. Brown, Rogers, Ark.
763475. Exercising machine. Jackson F. Frazee and H. V. Whitcomb, San Francisco.
763765. Cabinet for treatment of hemorrhoids or other diseases. Benjamin F. Johnson, Pontiac, Ill.
763683. Combined abdominal hernia pad. Anthoney E. Magori, Binghamton, N. Y.
763929. Sight-testing apparatus. August Reinhard, Milwaukee, Wis., and M. Scheinman, Chicago.
763936. Sterilizer. Fenton E. Stillwell, Montour Falls, N. Y.
763814. Mechanical appliance for cure of headache. Elijah A. Turner, Jr., Calcis, Ala.
763815. Chest protector. Charlotte Uebel, Chicago.
764349. Electro-massage device. Lee J. Chapman, Columbus, Ohio.
764188. Aseptic napkin receptacle. Augustinus A. H. Hamer, Amsterdam, Netherlands.
764470. Massage apparatus. James U. and G. Jones, Chattanooga, Tenn.
764294. Dried milk powder. John A. Just, Pulaski, N. Y.
764141. Bed for invalids. George H. Miller, Flatbush, N. Y.
764546. Lung tester. Henry Bardsley, Palmyra, N. Y.
764912. Sanitary appliance. Alexander A. Carson, Braintree, Mass.
764657. Pasteurizing apparatus. Wm. Clasmann, Milwaukee, Wis.
764564. Injection syringe. Albert Dreyer, Cologne, Germany.
764799. Massage rollers. Glenn M. Dunshee, Roland, Iowa.
764996. Syringe. Thomas H. Ellis, New Orleans.
764801. Surgical instrument. Charles H. Emerson, Whitehall, N. Y.
765074. Catamenial sack. Thomas I. Griffith, Pittsburg, Pa.
765024. Ankle brace. Henry Lusck, New York.
765094. Suspensory. Elbert W. Munsey, Drane, Texas.
764678. Medical tablet. Louis Rosenthal, Montreal, Canada.
764681. Surgeon's operating table. Sam G. Scanlan, Chicago.
765150. Electrotherapeutic instrument. James W. Shryock, Pueblo, Colo.
764687. Exercising apparatus. George D. Shultz, Kansas City, Mo.

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